NETGEAR®

Nighthawk X6
AC3200 Tri-Band WiFi Router

Model R8000
User Manual



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202-11398-01

350 East Plumeria Drive
San Jose, CA 95134
USA

Support

Thank you for selecting NETGEAR products.

Thank you for selecting NETGEAR products.

After installing your device, locate the serial number on the label of your product and use it to register your product at *https://my.netgear.com*. You must register your product before you can use NETGEAR telephone support. NETGEAR recommends registering your product through the NETGEAR website. For product updates and web support, visit *http://support.netgear.com*.

Phone (US & Canada only): 1-888-NETGEAR.

Phone (Other Countries): Check the list of phone numbers at http://support.netgear.com/general/contact/default.aspx.

Trademarks

Compliance

For regulatory compliance information, visit http://www.netgear.com/about/regulatory/.

See the regulatory compliance document before connecting the power supply.

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Chapter 4 Optimize Performance

Chapter 5 Control Access to the Internet

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Hardware Setup

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The Nighthawk X6 AC3200 Tri-Band WiFi Router with six high-performance antennas and three network bands—one 2.4 GHz band and two 5 GHz bands, delivers combined WiFi connection speeds of up to 3200 Mbps WiFi:

- 600 Mbps on the 2.4 GHz band 256 QAM (802.11n)
- 1300 Mbps on 5 GHz band 1 (802.11ac)
- 1300 Mbps on 5 GHz band 2 (802.11ac)

Nighthawk X6 is ideal for homes with increasing number of WiFi-connected devices and provides double the bandwidth of typical dual-band routers.

Nighthawk X6 also provides fast central storage, backup, and streaming to every device in your home with the USB 3.0 port (10 times faster than USB 2.0). Sharing content across your network is easy, whether you're accessing stored photos and music to printing wirelessly. Stream your stored media files anywhere on the network to DLNA screens. Share your music with AirPlay-compatible devices from a USB hard drive connected to the router. Use the free NETGEAR ReadySHARE Vault app to back up your Windows computers to a USB hard drive connected to Nighthawk X6.

This chapter contains the following sections:

- *Unpack Your Router*
- *Extend the Antennas*
- *Top View*
- *Rear Panel*
- *Position Your Router*
- *Cable Your Router*

For more information about the topics covered in this manual, visit the support website at *http://support.netgear.com*.

Unpack Your Router

Your package contains the following items.



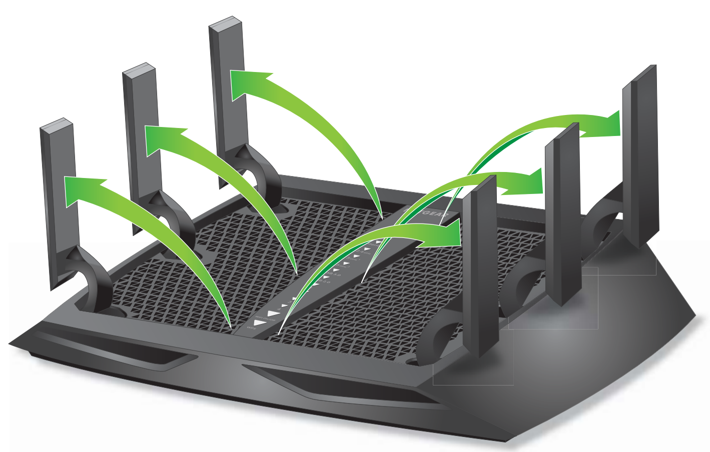
Figure 1. Package contents

Extend the Antennas

Position the antennas for the best WiFi performance.

➤ **To extend the antennas:**

Position all of the antennas vertically as shown.



Top View

The router has status LEDs and buttons on the top.

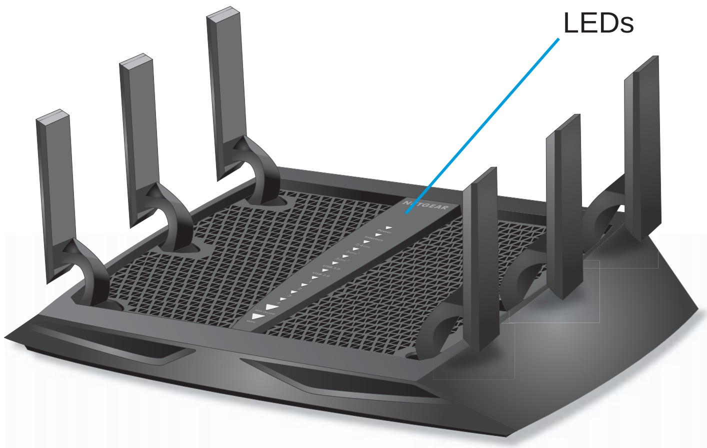


Figure 2. Router LEDs and buttons

Table 1. LED and button descriptions

LED	Description
Power	• **Solid amber**. The router is starting. • **Blinking amber**. The firmware is upgrading, or the **Reset** button was pressed. • **Solid white**. The router is ready. • **Blinking white**. The firmware is corrupted. • **Off**. Power is not supplied to the router.
Internet	• **Solid white**. The Internet connection is ready. • **Solid amber**. The router has detected an Ethernet cable connection to the modem. • **Off**. No Ethernet cable is connected between the router and the modem.
2.4 GHz Wireless	• **Solid white**. The 2.4 GHz WiFi radio is operating. • **Blinking**. The router is sending or receiving WiFi traffic. • **Off**. The 2.4 GHz WiFi radio is off.
5 GHz WiFi 1	• **Solid white**. The 5 GHz-1 WiFi radio is operating. • **Blinking**. The router is sending or receiving WiFi traffic. • **Off**. The 5 GHz-1 WiFi radio is off.
5 GHz WiFi 2	• **Solid white**. The 5 GHz-2 WiFi radio is operating. • **Blinking**. The router is sending or receiving WiFi traffic. • **Off**. The 5 GHz-2 WiFi radio is off.

Table 1. LED and button descriptions (continued)

LED	Description
USB 3.0 port USB 2.0 port USB 3.0 USB 2.0	The USB 1 LED is for the USB 3.0 USB port on the front panel. The USB 2 LED is for the USB 2.0 port on the rear panel. • **Solid white**. A USB device is connected and is ready. • **Blinking**. A USB device is plugged in and is trying to connect. • **Off**. No USB device is connected or someone clicked the **Safely Remove Hardware** button, and it is now safe to remove the attached USB device.
Ethernet ports 1-4 1 2 3 4	The LED color indicates the speed: white for Gigabit Ethernet connections and amber for 100 Mbps or 10 Mbps Ethernet connections. • **Solid**. A powered-on device is connected to the Ethernet port. • **Blinking**. The port is sending or receiving traffic. • **Off**. No device is connected to this Ethernet port.
WiFi On/Off button with LED WiFi On/Off	Pressing this button for two seconds turns the 2.4 GHz and 5 GHz WiFi radios on and off. If this LED is lit, the WiFi radios are on. If this LED is off, the WiFi radios are turned off and you cannot use WiFi to connect to the router.
WPS button with LED WPS	This button lets you use WPS to join the WiFi network without typing the WiFi password. The WPS LED blinks white during this process and then lights solid white.

You can use the **LED On/Off** switch on the rear panel of the router to turn the LEDs on the top of the router on or off. See <pdf>"Turn the LEDs On or Off" on page 12.

Rear Panel

The rear panel has the connections and buttons shown in the following figure.

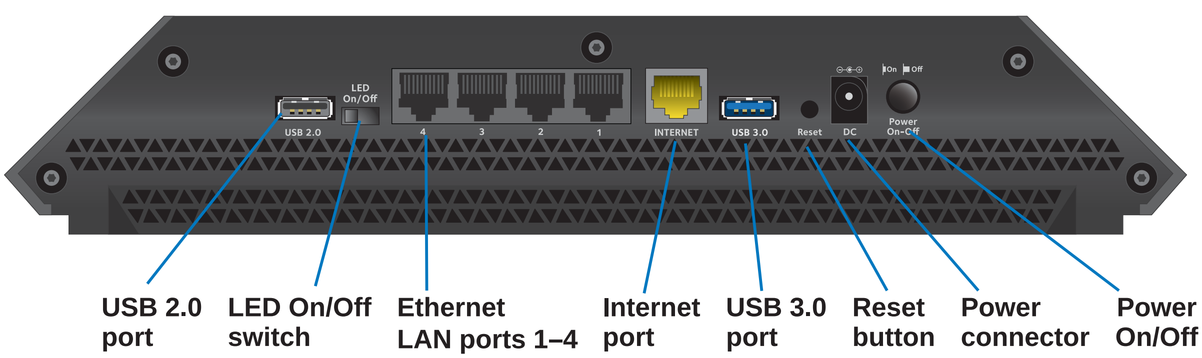


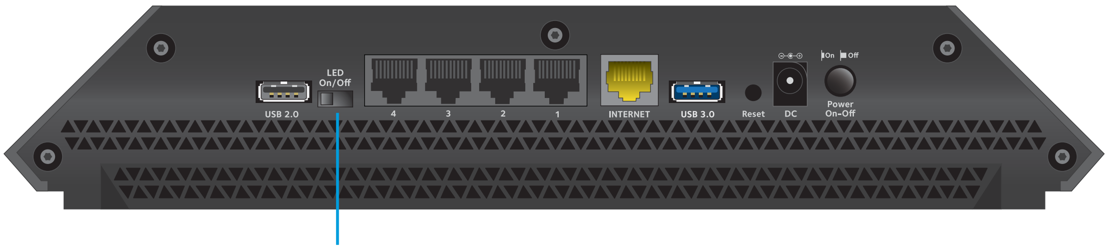
Figure 3. Router rear panel

Pressing the **Reset** button restores the factory settings. See *Factory Settings* on page 166.

Turn the LEDs On or Off

➢ **To turn the LEDs on or off:**

Slide the **LED On/Off** switch on the rear panel to the on or off position.



LED On/Off switch

The Power LED stays lit even if the **LED On/Off** switch is in the off position.

Position Your Router

The router lets you access your network anywhere within the operating range of your wireless network. However, the operating distance or range of your wireless connection can vary significantly depending on the physical placement of your router. For example, the thickness and number of walls the wireless signal passes through can limit the range.

Additionally, other wireless access points in and around your home might affect your router's signal. Wireless access points are routers, repeaters, WiFi range extenders, and any other device that emits a wireless signal for network access.

➢ **Position your router according to the following guidelines:**

Position your router according to the following guidelines:

- Place your router near the center of the area where your computers and other devices operate, and within line of sight to your wireless devices.
- Make sure that the router is within reach of an AC power outlet and near Ethernet cables for wired computers.
- Place the router in an elevated location, minimizing the number walls and ceilings between the router and your other devices.
- Place the router away from electrical devices such as these:
  - Ceiling fans
  - Home security systems
  - Microwaves
  - Computers
  - Base of a cordless phone
  - 2.4 GHz cordless phone

- Place the router away from large metal surfaces, large glass surfaces, and insulated walls such as these:
  - Solid metal doors
  - Aluminum studs
  - Fish tanks
  - Mirrors
  - Brick
  - Concrete

Cable Your Router

The following image shows how to cable your router:

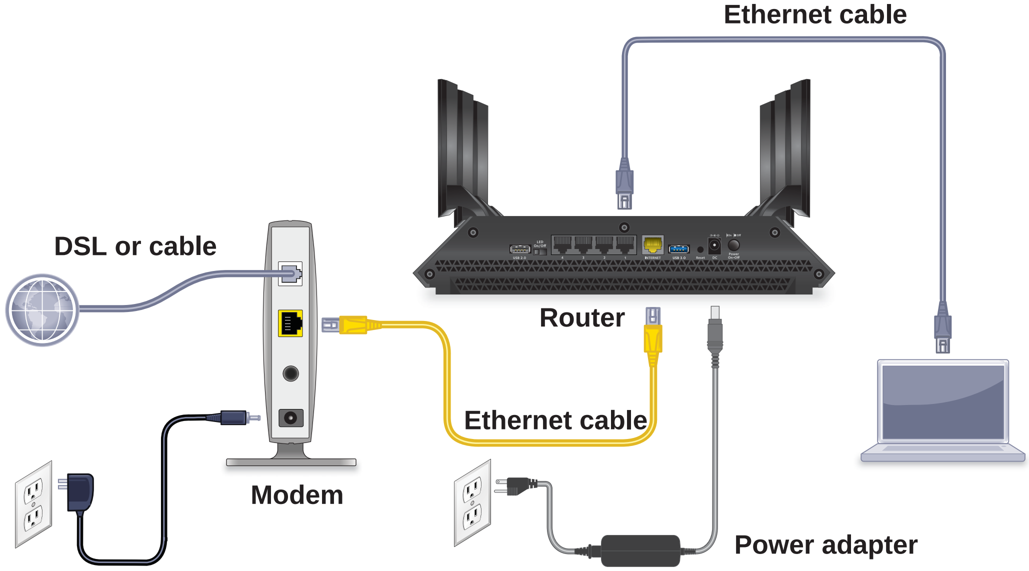


Figure 4. Router cabling

➢ **To cable your router:**

1. Unplug your modem's power, leaving the modem connected to the wall jack for your Internet service.

   If your modem has a battery backup, remove the battery.

2. Plug in and turn on your modem.

   If your modem has a battery backup, put the battery back in.

3. Connect your modem to the Internet port of your router with the yellow Ethernet cable that came with your router.
4. Connect the power adapter to your router and plug the power adapter into an outlet.
5. Slide the **LED On/Off** switch on the rear panel to the on position
6. Press the **Power On/Off** button on the rear panel of the router.

2. Connect to the Network and Access the Router

You can connect to the router's WiFi networks or use a wired Ethernet connection. This chapter explains the ways you can connect and how to access the router and log in.

This chapter contains the following sections:

- *Connect to the Network*
- *Types of Logins*
- *Use an Internet Browser to Access the Router*
- *Change the Language*
- *Access the Router with NETGEAR genie Apps*

Connect to the Network

You can connect to the router's network through a wired or WiFi connection. If you set up your computer to use a static IP address, change the settings so that it uses Dynamic Host Configuration Protocol (DHCP).

Wired Connection

You can connect your computer to the router using an Ethernet cable and join the router's local area network (LAN).

➤ **To connect your computer to the router with an Ethernet cable:**

1. Make sure that the router has power (its Power LED is lit).
2. Connect an Ethernet cable to an Ethernet port on your computer.
3. Connect the other end of the Ethernet cable to one of the numbered Ethernet ports.

   Your computer connects to the local area network (LAN). A message might display on your computer screen to notify you that an Ethernet cable is connected.

WiFi Connection

You can connect to the router's WiFi network with Wi-Fi Protected Setup (WPS) or you can find and select the WiFi network.

➤ **To use WPS to connect to the WiFi network:**

1. Make sure that the router has power (its Power LED is lit).
2. Check the WPS instructions for your computer or wireless device.
3. Press the **WPS** button on the router.
4. Within two minutes, on your computer or WiFi device, press its **WPS** button or follow its instructions for WPS connections.

   Your computer or wireless device connects to the WiFi network.

➤ **To find and select the WiFi network:**

1. Make sure that the router has power (its Power LED is lit).
2. On your computer or wireless device, find and select the WiFi network.

   The WiFi network name is on the router's label.

3. Join the WiFi network and enter the WiFi password.

   The password is on the router's label.

   Your wireless device connects to the WiFi network.

Label

The label on the router shows the login information, WiFi network name and network key (password), MAC address, and serial number.



Figure 5. Router label

Types of Logins

Separate types of logins have different purposes. It is important that you understand the difference so that you know which login to use when.

Types of logins:

- **ISP login**. The login that your ISP gave you logs you in to your Internet service. Your service provider gave you this login information in a letter or some other way. If you cannot find this login information, contact your service provider.
- **WiFi network key or password**. Your router is preset with a unique wireless network name (SSID) and password for wireless access. This information is on the router label.
- **Router login**.This logs you in to the router interface from an Internet browser as admin.

Use an Internet Browser to Access the Router

When you connect to the network (either with WiFi or with an Ethernet cable), you can use an Internet browser to access the router to view or change its settings. The first time you access the router, NETGEAR genie automatically checks to see if your router can connect to your Internet service.

NETGEAR genie Automatic Internet Setup

You can set up your router with the NETGEAR genie automatically, or you can use the genie menus and screens to set up your router manually. Before you start the setup process, get your ISP information and make sure that the computers and devices in the network have the settings described here.

When your Internet service starts, your Internet service provider (ISP) typically gives you all the information needed to connect to the Internet. For DSL service, you might need the following information to set up your router:

- The ISP configuration information for your DSL account
- ISP login name and password
- Fixed or static IP address setting (special deployment by ISP; this setting is rare)

If you cannot locate this information, ask your ISP to provide it. When your Internet connection is working, you no longer need to launch the ISP login program on your computer to access the Internet. When you start an Internet application, your router automatically logs you in.

NETGEAR genie runs on any device with a web browser. Installation and basic setup takes about 15 minutes to complete.

➢ **To use NETGEAR genie to set up your router:**

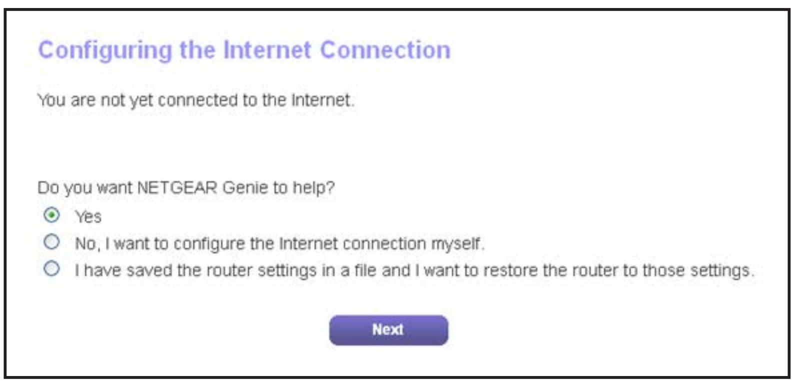
1. Turn the router on by pressing the **On/Off** button.
2. Make sure that your computer or wireless device is connected to the router with an Ethernet cable (wired) or wirelessly with the preset security settings listed on the label.

   Note: If you want to change the router's WiFi setting, use a wired connection to avoid being disconnected when the new WiFi settings take effect.

3. Launch an Internet browser.

   The screen that displays depends on whether you accessed the router before:

   - The first time you set up the Internet connection for your router, the browser goes to http://www.routerlogin.net and the NETGEAR genie screen displays.

   - If you already used the NETGEAR genie, type **http://www.routerlogin.net** in the address field for your browser to display the NETGEAR genie screen.

4. Follow the onscreen instructions.

   NETGEAR genie guides you through connecting the router to the Internet.

5. If the browser cannot display the web page, do the following:

- Make sure that the computer is connected to one of the four LAN Ethernet ports or wirelessly to the router.
- Make sure that the router has full power and that its Power LED is lit white.
- Close and reopen the browser or clear the browser cache.
- Browse to **http://www.routerlogin.net**.
- If the computer is set to a static or fixed IP address (this setting is uncommon), change it to obtain an IP address automatically from the router.

6. If the router does not connect to the Internet, do the following:
   a. Review your settings. Make sure that you selected the correct options and typed everything correctly.
   b. Contact your ISP to verify that you have the correct configuration information.
   c. Read *Chapter 15, Troubleshooting*. If problems persist, register your NETGEAR product and contact NETGEAR technical support.

Log In to the Router

When you first set up your router, NETGEAR genie automatically starts when you launch an Internet browser on a computer that is connected to the router. If you want to view or change settings for the router, you can use genie again.

➢ **To log in to the router:**

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.

Change the Language

By default, the language is set to **Auto**.

➢ **To change the language:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

The BASIC Home screen displays.

4. In the upper right corner, select a language from the list.
5. When prompted, click the **OK** button to confirm this change.

   The screen refreshes with the language that you selected.

Access the Router with NETGEAR genie Apps

The genie app is the easy dashboard for managing, monitoring, and repairing your home network. The genie app can help you with the following:

- Automatically repair common wireless network problems.
- Easily manage router features like Live Parental Controls, guest access, Internet traffic meter, speed test, and more.

➢ **To use the genie app to access the router:**

1. Visit the NETGEAR genie web page at *www.NETGEAR.com/genie*.
2. Follow the onscreen instructions to install the app on your smartphone, tablet, or computer.
3. Launch the genie app.

   The genie app dashboard screen displays.

3. Specify Your Internet Settings

Usually, the quickest way to set up the router to use your Internet connection is to allow the genie to detect the Internet connection when you first access the router with an Internet browser. You can also customize or specify your Internet settings.

This chapter contains the following sections:

- *Use the Internet Setup Wizard*
- *Manually Set Up the Internet Connection*
- *Specify IPv6 Internet Connections*
- *Change the MTU Size*

Use the Internet Setup Wizard

You can use the Setup Wizard to detect your Internet settings and automatically set up your router. The Setup Wizard is not the same as the genie screens that display the first time you connect to your router to set it up.

➢ **To use the Setup Wizard:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
4. Select **ADVANCED > Setup Wizard**.



5. Select the **Yes** radio button.

   If you select **No**, you are taken to the Internet Setup screen (see *Figure , Manually Set Up the Internet Connection* on page 22).
6. Click the **Next** button.

   The Setup Wizard searches your Internet connection for servers and protocols to determine your Internet configuration.

   When the router connects to the Internet, you are prompted to download and install the free NETGEAR Desktop genie app and the free ReadySHARE Vault app.

Manually Set Up the Internet Connection

You can view or change the router's Internet connection settings.

Specify an Internet Connection Without a Login

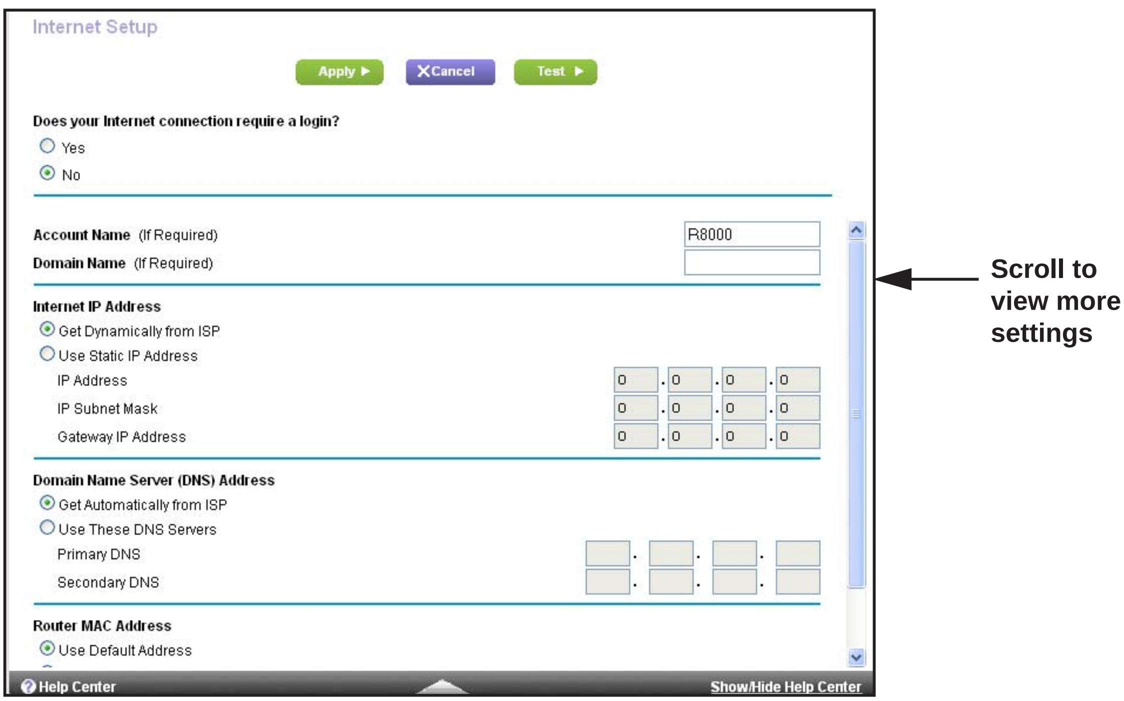
➤ **To specify the Internet connection settings:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
4. Select **Internet**.



5. For the Does your Internet connection require a login? setting, leave the **No** radio button selected.
6. If your Internet connection requires an account name or host name, type it in the **Account Name (If Required)** field.

7. If your Internet connection requires a domain name, type it in the **Domain Name (If Required)** field.

   For the other sections in this screen, the default settings usually work, but you can change them.

8. Select an Internet IP Address radio button:
   - **Get Dynamically from ISP**. Your ISP uses DHCP to assign your IP address. Your ISP automatically assigns these addresses.
   - **Use Static IP Address**. Enter the IP address, IP subnet mask, and the gateway IP address that your ISP assigned. The gateway is the ISP router to which your router connects.

9. Select a Domain Name Server (DNS) Address radio button:
   - **Get Automatically from ISP**. Your ISP uses DHCP to assign your DNS servers. Your ISP automatically assigns this address.
   - **Use These DNS Servers**. If you know that your ISP requires specific servers, select this option. Enter the IP address of your ISP's primary DNS server. If a secondary DNS server address is available, enter it also.

10. Select a Router MAC Address radio button:
    - **Use Default Address**. Use the default MAC address.
    - **Use Computer MAC Address**. The router captures and uses the MAC address of the computer that you are now using. You must use the one computer that the ISP allows.
    - **Use This MAC Address**. Enter the MAC address that you want to use.

11. Click the **Apply** button.

    Your settings are saved.

12. Click the **Test** button to test your Internet connection.

    If the NETGEAR website does not display within one minute, see *Chapter 15, Troubleshooting*.

Specify an Internet Connection That Uses a Login

➢ **To view or change the basic Internet setup:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

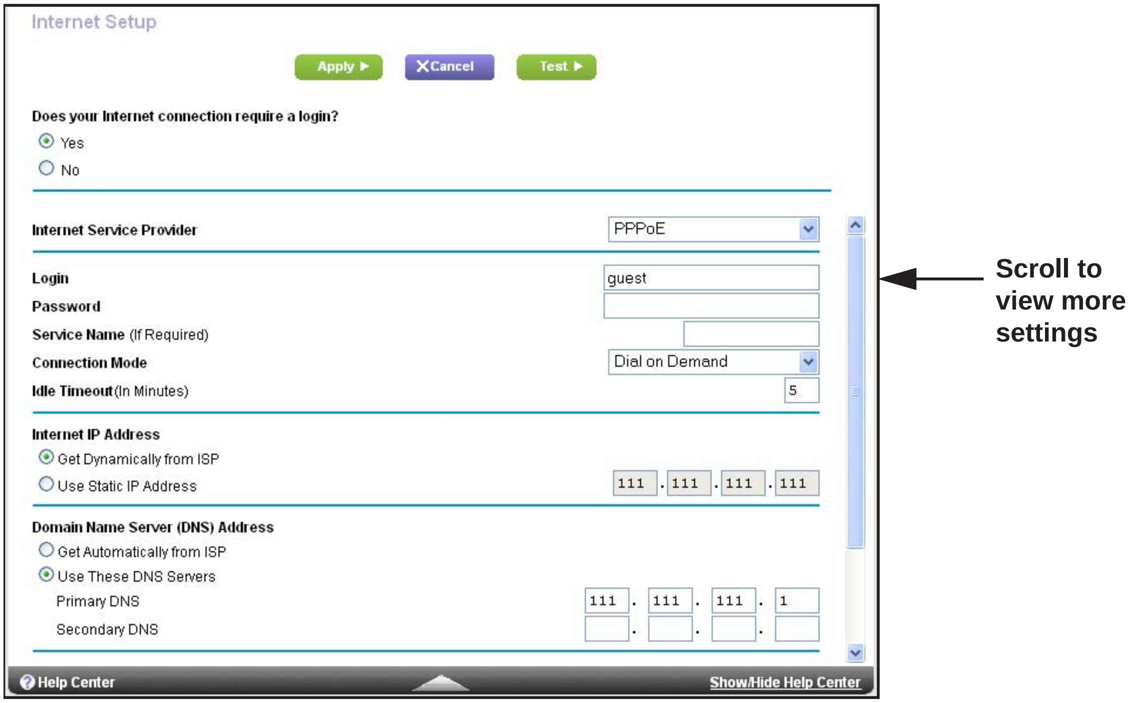
   A login screen displays.

3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.

4. Select **Internet**.



5. In the Does your Internet connection require a login? section of the screen, select the **Yes** radio button.

   The screen adjusts.

6. In the **Internet Service Provider** list, select the encapsulation method:

   PPPoE, **PPPoA**, or **L2TP**.

7. In the **Login** field, enter the login name your ISP gave you.

   This login name is often an email address.

8. In the **Password** field, type the password that you use to log in to your Internet service.
9. If your ISP requires a service name, type it in the **Service Name (if Required)** field.
10. In the **Connection Mode** list, select **Always On**, **Dial on Demand**, or **Manually Connect**.
11. To change the number of minutes until the Internet login times out, in the **Idle Timeout (In minutes)** field, type the number of minutes.

    This is how long the router keeps the Internet connection active when no one on the network is using the Internet connection. A value of 0 (zero) means never log out.

12. Select an Internet IP Address radio button:
    - **Get Dynamically from ISP**. Your ISP uses DHCP to assign your IP address. Your ISP automatically assigns these addresses.
    - **Use Static IP Address**. Enter the IP address, IP subnet mask, and the gateway IP address that your ISP assigned. The gateway is the ISP router to which your router connects.

13. Select a Domain Name Server (DNS) Address radio button:
    - **Get Automatically from ISP**. Your ISP uses DHCP to assign your DNS servers. Your ISP automatically assigns this address.
    - **Use These DNS Servers**. If you know that your ISP requires specific servers, select this option. Enter the IP address of your ISP's primary DNS server. If a secondary DNS server address is available, enter it also.
14. Select a Router MAC Address radio button:
    - **Use Default Address**. Use the default MAC address.
    - **Use Computer MAC Address**. The router captures and uses the MAC address of the computer that you are now using. You must use the one computer that the ISP allows.
    - **Use This MAC Address**. Enter the MAC address that you want to use.
15. Click the **Apply** button.

    Your settings are saved.
16. Click the **Test** button to test your Internet connection.

    If the NETGEAR website does not display within one minute, see *Chapter 15, Troubleshooting*.

Specify IPv6 Internet Connections

You can set up an IPv6 Internet connection if genie does not detect it automatically.

➢ **To set up an IPv6 Internet connection:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
4. Select **ADVANCED > Advanced Setup > IPv6**.

   The Basic Settings screen displays.
5. In the **Internet Connection Type** list, select the IPv6 connection type:
   - If your ISP did not provide details, select **IPv6 Tunnel**.
   - If you are not sure, select **Auto Detect** so that the router detects the IPv6 type that is in use.
   - If your Internet connection does not use PPPoe or DHCP, or not fixed, but is IPv6, select **Auto Config**.

Your Internet service provider (ISP) can provide this information. For more information about IPv6 Internet connection, see the following sections.

- *Use Auto Detect for an IPv6 Internet Connection* on page 26
- *Use Auto Config for an IPv6 Internet Connection* on page 28
- *Set Up an IPv6 6to4 Tunnel Internet Connection* on page 29
- *Set Up an IPv6 Pass Through Internet Connection* on page 31
- *Set Up an IPv6 Fixed Internet Connection* on page 31
- *Set Up an IPv6 DHCP Internet Connection* on page 33
- *Set Up an IPv6 PPPoE Internet Connection* on page 34

6. Click the **Apply** button.

   Your changes take effect.

Requirements for Entering IPv6 Addresses

IPv6 addresses are denoted by eight groups of hexadecimal quartets that are separated by colons. You can reduce any four-digit group of zeros within an IPv6 address to a single zero or omit it. The following errors invalidate an IPv6 address:

- More than eight groups of hexadecimal quartets
- More than four hexadecimal characters in a quartet
- More than two colons in a row

Use Auto Detect for an IPv6 Internet Connection

➢ **To set up an IPv6 Internet connection through auto detection:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
4. Select **ADVANCED > Advanced Setup > IPv6**.

   The IPv6 screen displays.
5. In the **Internet Connection Type** list, select **Auto Detect**.

The screen adjusts:



The router automatically detects the information in the following fields:

- **Connection Type**. This field indicates the connection type that is detected.
- **Router's IPv6 Address on WAN**. This field shows the IPv6 address that is acquired for the router's WAN (or Internet) interface. The number after the slash (/) is the length of the prefix, which is also indicated by the underline (_) under the IPv6 address. If no address is acquired, the field displays Not Available.
- **Router's IPv6 Address on LAN**. This field shows the IPv6 address that is acquired for the router's LAN interface. The number after the slash (/) is the length of the prefix, which is also indicated by the underline (_) under the IPv6 address. If no address is acquired, the field displays Not Available.

6. Select an IP Address Assignment radio button:
   - **Use DHCP Server**. This method passes more information to LAN devices, but some IPv6 systems might not support the DHCv6 client function.
   - **Auto Config**. This is the default setting.

   This setting specifies how the router assigns IPv6 addresses to the devices on your home network (the LAN).

7. (Optional) Select the **Use This Interface ID** check box and specify the interface ID to be used for the IPv6 address of the router's LAN interface.

   If you do not specify an ID here, the router generates one automatically from its MAC address.

8. Click the **Apply** button.

   Your settings are saved.

Use Auto Config for an IPv6 Internet Connection

➤ **To set up an IPv6 Internet connection through auto configuration:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

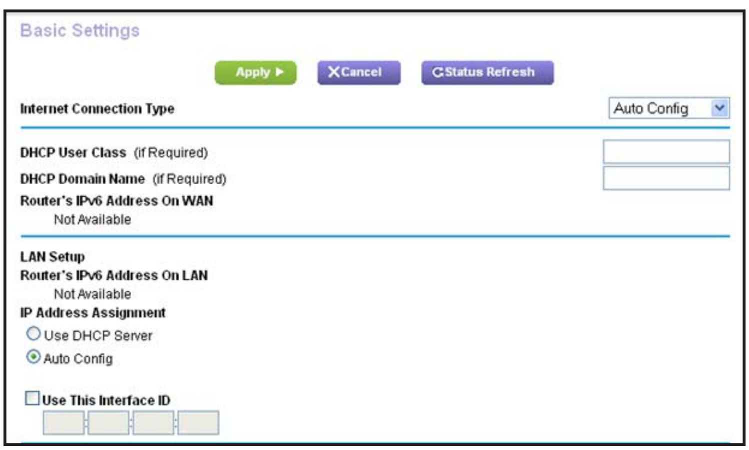
   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
4. Select **ADVANCED > Advanced Setup > IPv6**.

   The IPv6 screen displays.
5. In the **Internet Connection Type** list, select **Auto Config**.

   The screen adjusts:



   The router automatically detects the information in the following fields:

   - **Router's IPv6 Address on WAN**. This field shows the IPv6 address that is acquired for the router's WAN (or Internet) interface. The number after the slash (/) is the length of the prefix, which is also indicated by the underline (_) under the IPv6 address. If no address is acquired, the field displays Not Available.
   - **Router's IPv6 Address on LAN**. This field shows the IPv6 address that is acquired for the router's LAN interface. The number after the slash (/) is the length of the prefix, which is also indicated by the underline (_) under the IPv6 address. If no address is acquired, the field displays Not Available.
6. (Optional) In the **DHCP User Class (If Required)** field, enter a host name.

   Most people can leave this field blank, but if your ISP has given you a specific host name, enter it here.

7. (Optional) In the **DHCP Domain Name (If Required)** field, enter a domain name.

   You can type the domain name of your IPv6 ISP. Do not enter the domain name for the IPv4 ISP here. For example, if your ISP's mail server is mail.xxx.yyy.zzz, type xxx.yyy.zzz as the domain name. If your ISP provided a domain name, type it in this field. For example, Earthlink Cable might require a host name of home, and Comcast sometimes supplies a domain name.

8. Select an IP Address Assignment radio button:
   - **Use DHCP Server**. This method passes more information to LAN devices but some IPv6 systems might not support the DHCv6 client function.
   - **Auto Config**. This is the default setting.

   This setting specifies how the router assigns IPv6 addresses to the devices on your home network (the LAN).

9. (Optional) Select the **Use This Interface ID** check box and specify the interface ID to be used for the IPv6 address of the router's LAN interface.

   If you do not specify an ID here, the router generates one automatically from its MAC address.

10. Click the **Apply** button.

    Your settings are saved.

Set Up an IPv6 6to4 Tunnel Internet Connection

The remote relay router is the router to which your router creates a 6to4 tunnel. Make sure that the IPv4 Internet connection is working before you apply the 6to4 tunnel settings for the IPv6 connection.

➢ **To set up an IPv6 Internet connection by using a 6to4 tunnel:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.

4. Select **ADVANCED > Advanced Setup > IPv6**.

   The IPv6 screen displays.

5. In the **Internet Connection Type** list, select **6to4 Tunnel**.

The screen adjusts:



The router automatically detects the information in the Router's IPv6 Address on LAN field. This field shows the IPv6 address that is acquired for the router's LAN interface. The number after the slash (/) is the length of the prefix, which is also indicated by the underline (_) under the IPv6 address. If no address is acquired, the field displays Not Available.

6. Configure the remote 6to4 relay router settings by selecting one of the following radio buttons:
   - **Auto**. Your router uses any remote relay router that is available on the Internet. This is the default setting.
   - **Static IP Address**. Enter the static IPv4 address of the remote relay router. Your IPv6 ISP usually provides this address.
7. Select an IP Address Assignment radio button:
   - **Use DHCP Server**. This method passes more information to LAN devices but some IPv6 systems might not support the DHCv6 client function.
   - **Auto Config**. This is the default setting.

   This setting specifies how the router assigns IPv6 addresses to the devices on your home network (the LAN).
8. (Optional) Select the **Use This Interface ID** check box and specify the interface ID to be used for the IPv6 address of the router's LAN interface.

   If you do not specify an ID here, the router generates one automatically from its MAC address.
9. Click the **Apply** button.

   Your settings are saved.

Set Up an IPv6 Pass Through Internet Connection

In pass-through mode, the router works as a Layer 2 Ethernet switch with two ports (LAN and WAN Ethernet ports) for IPv6 packets. The router does not process any IPv6 header packets.

- **To set up a pass-through IPv6 Internet connection:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
4. Select **ADVANCED > Advanced Setup > IPv6**.

   The IPv6 screen displays.
5. In the **Internet Connection Type** list, select **Pass Through**.

   The screen adjusts, but no additional fields display.
6. Click the **Apply** button.

   Your settings are saved.

Set Up an IPv6 Fixed Internet Connection

- **To set up a fixed IPv6 Internet connection:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

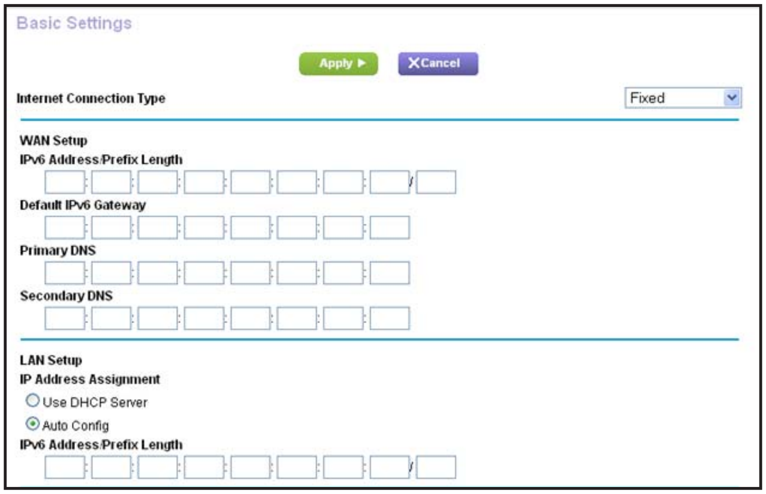
   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
4. Select **ADVANCED > Advanced Setup > IPv6**.

   The IPv6 screen displays.
5. In the **Internet Connection Type** list, select **Fixed**.

The screen adjusts:



6. Configure the fixed IPv6 addresses for the WAN connection:
   - **IPv6 Address/Prefix Length**. The IPv6 address and prefix length of the router WAN interface.
   - **Default IPv6 Gateway**. The IPv6 address of the default IPv6 gateway for the router's WAN interface.
   - **Primary DNS Server**. The primary DNS server that resolves IPv6 domain name records for the router.
   - **Secondary DNS Server**. The secondary DNS server that resolves IPv6 domain name records for the router.

Note: If you do not specify the DNS servers, the router uses the DNS servers that are configured for the IPv4 Internet connection on the Internet Setup screen. (See *Manually Set Up the Internet Connection* on page 22.)

7. Select an IP Address Assignment radio button:
   - **Use DHCP Server**. This method passes more information to LAN devices but some IPv6 systems might not support the DHCv6 client function.
   - **Auto Config**. This is the default setting.

   This setting specifies how the router assigns IPv6 addresses to the devices on your home network (the LAN).

8. In the **IPv6 Address/Prefix Length** fields, specify the static IPv6 address and prefix length of the router's LAN interface.

   If you do not specify an ID here, the router generates one automatically from its MAC address.

9. CClick the **Apply** button.

   Your settings are saved.

Set Up an IPv6 DHCP Internet Connection

➢ **To set up an IPv6 Internet connection with a DHCP server:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

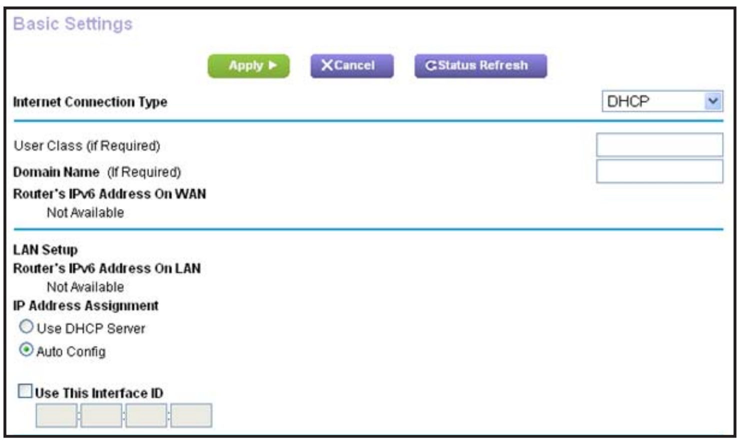
   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
4. Select **ADVANCED > Advanced Setup > IPv6**.

   The IPv6 screen displays.
5. In the **Internet Connection Type** list, select **DHCP**.

   The screen adjusts:



   The router automatically detects the information in the following fields:

   - **Router's IPv6 Address on WAN**. This field shows the IPv6 address that is acquired for the router's WAN (or Internet) interface. The number after the slash (/) is the length of the prefix, which is also indicated by the underline (_) under the IPv6 address. If no address is acquired, the field displays Not Available.
   - **Router's IPv6 Address on LAN**. This field shows the IPv6 address that is acquired for the router's LAN interface. The number after the slash (/) is the length of the prefix, which is also indicated by the underline (_) under the IPv6 address. If no address is acquired, the field displays Not Available.
6. (Optional) In the **User Class (If Required)** field, enter a host name.

   Most people can leave this field blank, but if your ISP gave you a specific host name, enter it here.

7. (Optional) In the **Domain Name (If Required)** field, enter a domain name.

   You can type the domain name of your IPv6 ISP. Do not enter the domain name for the IPv4 ISP here. For example, if your ISP's mail server is mail.xxx.yyy.zzz, type xxx.yyy.zzz as the domain name. If your ISP provided a domain name, type it in this field. For example, Earthlink Cable might require a host name of home, and Comcast sometimes supplies a domain name.

8. Select an IP Address Assignment radio button:
   - **Use DHCP Server**. This method passes more information to LAN devices but some IPv6 systems might not support the DHCv6 client function.
   - **Auto Config**. This is the default setting.

   This setting specifies how the router assigns IPv6 addresses to the devices on your home network (the LAN).

9. (Optional) Select the **Use This Interface ID** check box and specify the interface ID to be used for the IPv6 address of the router's LAN interface.

   If you do not specify an ID here, the router generates one automatically from its MAC address.

10. Click the **Apply** button.

    Your settings are saved.

Set Up an IPv6 PPPoE Internet Connection

➢ **To set up a PPPoE IPv6 Internet connection:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.

4. Select **ADVANCED > Advanced Setup > IPv6**.

   The IPv6 screen displays.

5. In the **Internet Connection Type** list, select **PPPoE**.

The screen adjusts:



The router automatically detects the information in the following fields:

- **Router's IPv6 Address on WAN**. This field shows the IPv6 address that is acquired for the router's WAN (or Internet) interface. The number after the slash (/) is the length of the prefix, which is also indicated by the underline (_) under the IPv6 address. If no address is acquired, the field displays Not Available.
- **Router's IPv6 Address on LAN**. This field shows the IPv6 address that is acquired for the router's LAN interface. The number after the slash (/) is the length of the prefix, which is also indicated by the underline (_) under the IPv6 address. If no address is acquired, the field displays Not Available.

6. In the **Login** field, enter the login information for the ISP connection.

   This is usually the name that you use in your email address. For example, if your main mail account is JerAB@ISP.com, you would type JerAB in this field. Some ISPs (like Mindspring, Earthlink, and T-DSL) require that you use your full email address when you log in. If your ISP requires your full email address, type it in this field.

7. In the **Password** field, enter the password for the ISP connection.
8. In the **Service Name** field, enter a service name.

   If your ISP did not provide a service name, leave this field blank.

   Note: The default setting of the **Connection Mode** field is **Always On** to provide a steady IPv6 connection. The router never terminates the connection. If the connection is terminated, for example, when the modem is turned off, the router attempts to reestablish the connection immediately after the PPPoE connection becomes available again.

9. Select an IP Address Assignment radio button:
   - **Use DHCP Server**. This method passes more information to LAN devices but some IPv6 systems might not support the DHCv6 client function.
   - **Auto Config**. This is the default setting.

This setting specifies how the router assigns IPv6 addresses to the devices on your home network (the LAN).

10. (Optional) Select the **Use This Interface ID** check box and specify the interface ID to be used for the IPv6 address of the router's LAN interface.

    If you do not specify an ID here, the router generates one automatically from its MAC address.

11. Click the **Apply** button.

    Your settings are saved.

Change the MTU Size

The maximum transmission unit (MTU) is the largest data packet a network device transmits. When one network device communicates across the Internet with another, the data packets travel through many devices along the way. If a device in the data path has a lower MTU setting than the other devices, the data packets must be split or "fragmented" to accommodate the device with the smallest MTU.

The best MTU setting for NETGEAR equipment is often the default value. In some situations, changing the value fixes one problem but causes another. Leave the MTU unchanged unless one of these situations occurs:

- You experience problems connecting to your ISP or other Internet service, and the technical support of either the ISP or NETGEAR recommends changing the MTU setting. These web-based applications might require an MTU change:
  - A secure website that does not open, or displays only part of a web page
  - Yahoo email
  - MSN portal
  - America Online's DSL service
- You use VPN and have severe performance problems.
- You used a program to optimize MTU for performance reasons and now you have connectivity or performance problems.

Note: An incorrect MTU setting can cause Internet communication problems. For example, you might not be able to access certain websites, frames within websites, secure login pages, or FTP or POP servers.

➢ **To change the MTU size:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

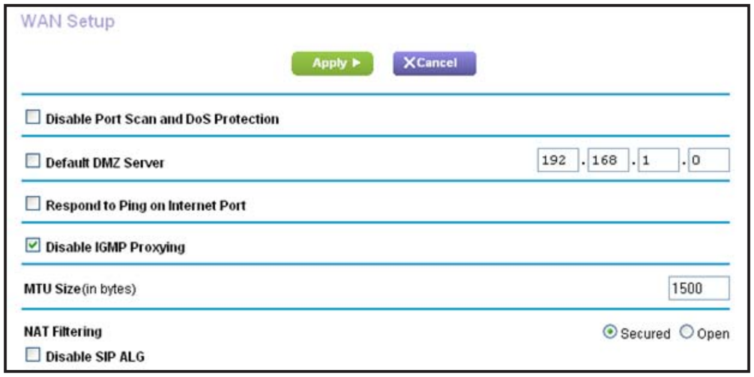
A login screen displays.

3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.

4. Select **ADVANCED > Setup > WAN Setup**.



5. In the **MTU Size** field, enter a value from 64 to 1500.
6. Click the **Apply** button.

   Your settings are saved.

If you suspect an MTU problem, a common solution is to change the MTU to 1400. If you are willing to experiment, you can gradually reduce the MTU from the maximum value of 1500 until the problem goes away. The following table describes common MTU sizes and applications.

Table 2. Common MTU sizes

MTU	Application
1500	The largest Ethernet packet size. This setting is typical for connections that do not use PPPoE or VPN and is the default value for NETGEAR routers, adapters, and switches.
1492	Used in PPPoE environments.
1472	Maximum size to use for pinging. (Larger packets are fragmented.)
1468	Used in some DHCP environments.
1460	Usable by AOL if you do not have large email attachments, for example.
1436	Used in PPTP environments or with VPN.
1400	Maximum size for AOL DSL.
576	Typical value to connect to dial-up ISPs.

4. Optimize Performance

4

You can set up the router to optimize performance for applications such as multiplayer gaming, peer-to-peer connections, or real-time communications such as instant messaging or remote assistance (a feature in Windows XP). By default, the router uses Wi-Fi Multimedia Quality of Service (WMM QoS).

This chapter contains the following sections:

- *Improve Network Connections with Universal Plug and Play*
- *Wi-Fi Multimedia Quality of Service*

Improve Network Connections with Universal Plug and Play

Universal Plug and Play (UPnP) helps devices, such as Internet appliances and computers, access the network and connect to other devices as needed. UPnP devices can automatically discover the services from other registered UPnP devices on the network.

If you use applications such as multiplayer gaming, peer-to-peer connections, or real-time communications such as instant messaging or remote assistance (a feature in Windows XP), enable UPnP.

➢ **To enable Universal Plug and Play:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
4. Select **ADVANCED > Advanced Setup > UPnP**.

   The UPnP screen displays.
5. Select the **Turn UPnP On** check box.

   By default, this check box is selected. UPnP for automatic device configuration can be enabled or disabled. If the **Turn UPnP On** check box is cleared, the router does not allow any device to automatically control router resources, such as port forwarding.
6. Type the advertisement period in minutes.

   The advertisement period specifies how often the router broadcasts its UPnP information. This value can range from 1 to 1440 minutes. The default period is 30 minutes. Shorter durations ensure that control points have current device status at the expense of more network traffic. Longer durations can compromise the freshness of the device status but can significantly reduce network traffic.
7. Type the advertisement time to live in hops.

   The time to live for the advertisement is measured in hops (steps) for each UPnP packet sent. Hops are the steps a packet takes between routers. The number of hops can range from 1 to 255. The default value for the advertisement time to live is 4 hops, which should be fine for most home networks. If you notice that some devices are not being updated or reached correctly, it might be necessary to increase this value.
8. Click the **Apply** button.

The UPnP Portmap Table displays the IP address of each UPnP device that is accessing the router and which ports (internal and external) that device opened. The UPnP Portmap Table also displays what type of port is open and whether that port is still active for each IP address.

To refresh the information in the UPnP Portmap Table, click the **Refresh** button.

Wi-Fi Multimedia Quality of Service

Wi-Fi Multimedia Quality of Service (WMM QoS) prioritizes wireless voice and video traffic over the WiFi link. WMM QoS is automatically enabled for the router.

WMM QoS prioritizes wireless data packets from different applications based on four access categories: voice, video, best effort, and background. For an application to receive the benefits of WMM QoS, both it and the client running that application must have WMM enabled. Legacy applications that do not support WMM and applications that do not require QoS are assigned to the best effort category, which receives a lower priority than voice and video.

➢ **To disable WMM QoS:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
4. Select **ADVANCED > Setup > QoS Setup**.

   The QoS Setup screen displays.
5. Clear the **Enable WMM (Wi-Fi multimedia) settings (2.4 GHz b/g/n)** check box.
6. Clear the **Enable WMM (Wi-Fi multimedia) settings (5 GHz b/g/n)** check box.
7. Clear the **Enable WMM (Wi-Fi multimedia) settings Second Radio (5 GHz b/g/n)** check box.
8. Click the **Apply** button.

   Your changes are saved.

5. Control Access to the Internet

The router comes with a built-in firewall that helps protect your home network from unwanted intrusions from the Internet.

This chapter includes the following sections:

- *Set Up Parental Controls*
- *Allow or Block Access to Your Network*
- *Use Keywords to Block Internet Sites*
- *Block Services from the Internet*
- *Schedule When to Block Internet Sites and Services*
- *Avoid Blocking on a Trusted Computer*
- *Set Up Security Event Email Notifications*

Set Up Parental Controls

The first time that you select **Parental Controls** from the BASIC Home screen, your browser goes to the Live Parental Controls website, where you can learn more about Live Parental Controls and download the application.



➢ **To set up Live Parental Controls:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

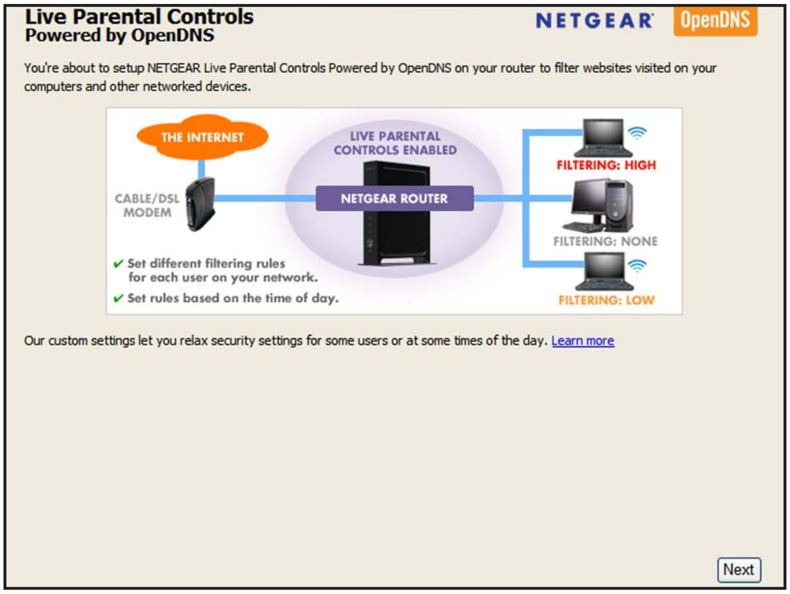
   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
4. Select **Parental Controls**.

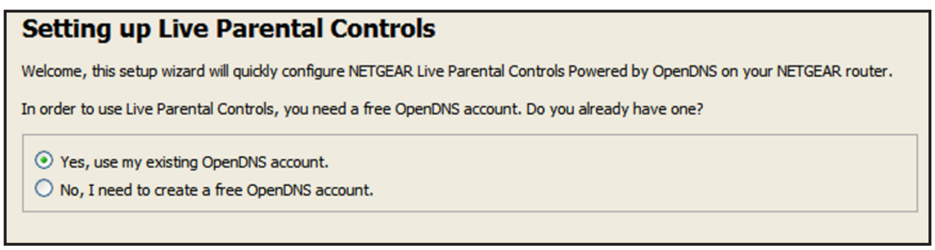
   If your Internet connection is working, the browser automatically goes online and displays the Parental Controls web page.
5. Click either the **Windows Users** or **Mac Users** button.
6. Follow the onscreen instructions to download and install the NETGEAR Live Parental Controls management utility.

After installation, Live Parental Controls automatically starts.



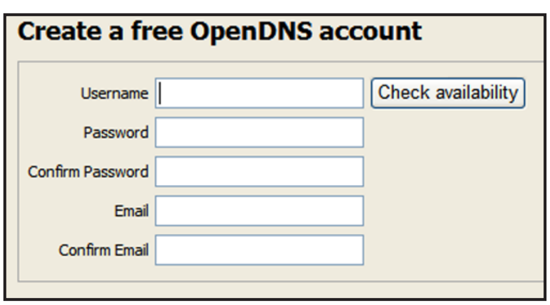
7. Click the **Next** button.
8. Read the note, and click the **Next** button again to proceed.

   Because Live Parental Controls uses free OpenDNS accounts, you are prompted to log in or create a free account.



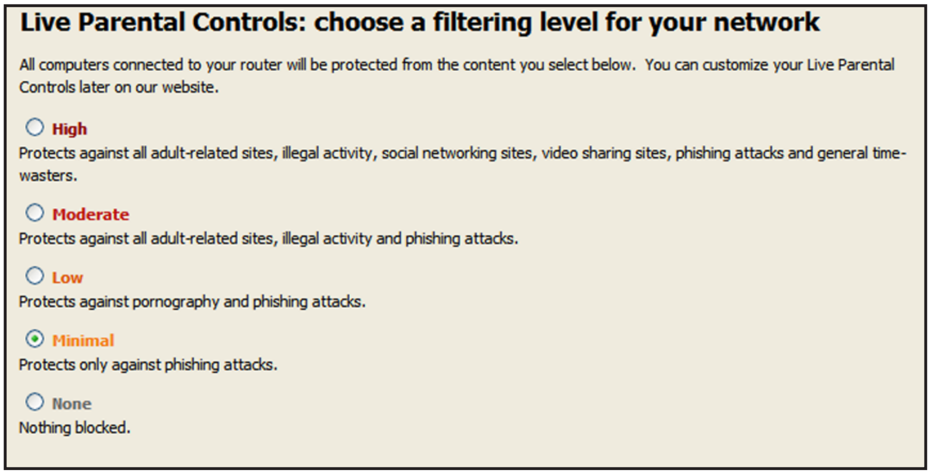
9. Select the radio button that applies to you:
   - If you already have an OpenDNS account, leave the **Yes** radio button selected.
   - If you do not have an OpenDNS account, select the **No** radio button.
10. Click the **Next** button.

    If you are creating an account, the following screen displays:

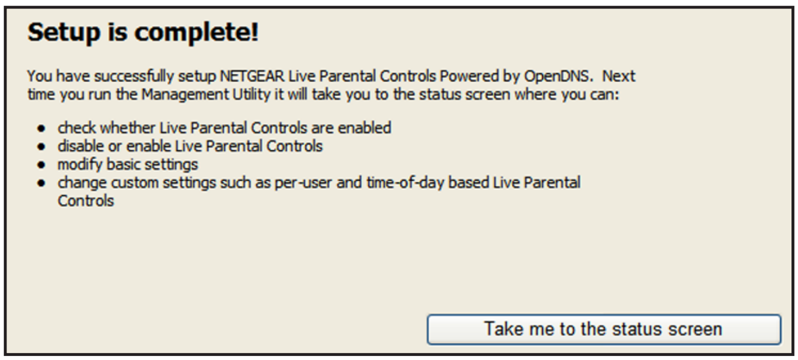


11. Complete the fields and click the **Next** button.

After you log on or create your account, the filtering level screen displays:



12. Select a radio button for a filtering level and click the **Next** button.



13. Click the **Take me to the status screen** button.

Parental controls are now set up for the router. The dashboard shows Parental Controls as Enabled.

Allow or Block Access to Your Network

You can use access control to block or allow access to your network.

➢ **To set up access control:**

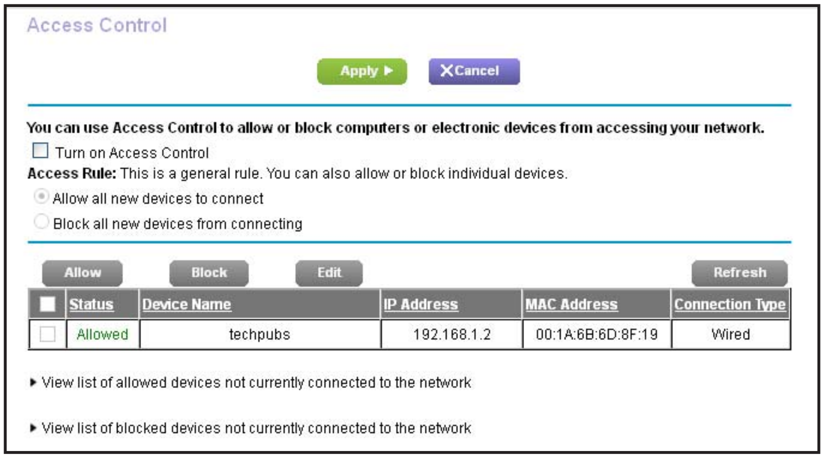
1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

The BASIC Home screen displays.

4. Select **ADVANCED > Security > Access Control**.



5. Select the **Turn on Access Control** check box.

   You must select this check box before you can specify an access rule and use the **Allow** and **Block** buttons. When this check box is cleared, all devices are allowed to connect, even if the device is in the blocked list.

6. Select an access rule:
   - **Allow all new devices to connect**. With this setting, if you add a new device, it can access your network. You don’t need to enter its MAC address in this screen. NETGEAR recommends that you leave this radio button selected.
   - **Block all new devices from connecting**. With this setting, if you add a new device, before it can access your network, you must enter its MAC address for an Ethernet connection and its MAC address for a WiFi connection in the allowed list.

   The access rule does not affect previously blocked or allowed devices. It applies only to devices joining your network in the future after you apply these settings.

7. To view allowed or blocked devices that are not connected, click the following links:
   - **View list of allowed devices not currently connected to the network**
   - **View list of blocked devices not currently connected to the network**

   The list displays.

8. To allow the computer or device you’re currently using to continue to access the network, select the check box next to your computer or device, and click the **Allow** button.

9. Click the **Apply** button.

   Your changes take effect.

Manage Network Access Control Lists

You can use access control to block or allow access to your network.

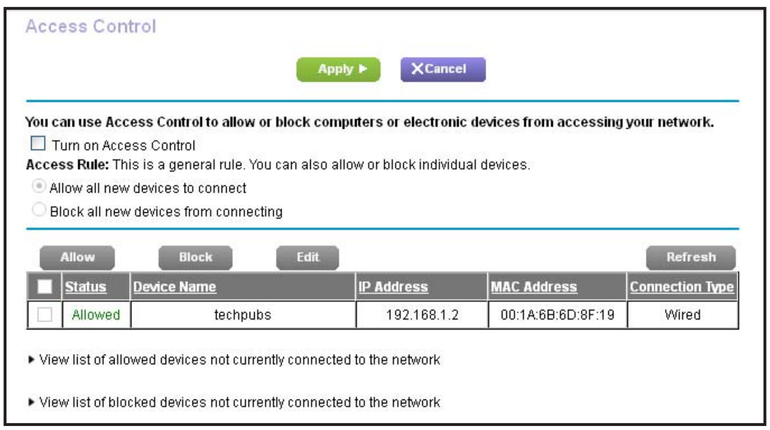
➢ **To manage devices that are allowed or blocked:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

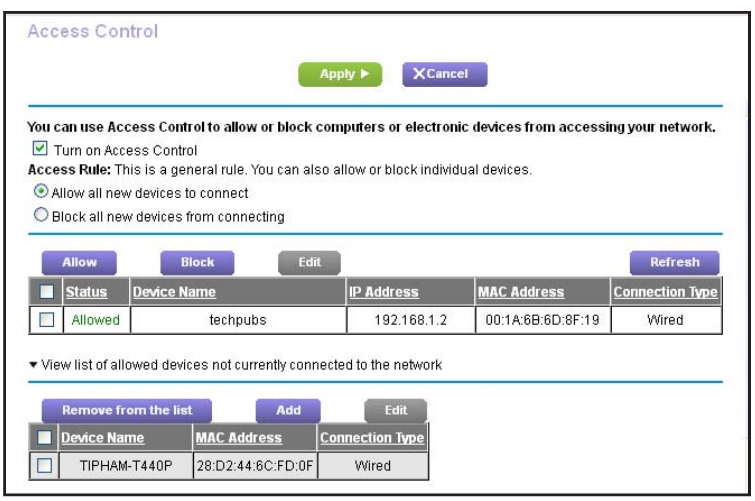
   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
4. Select **ADVANCED > Security > Access Control**.



5. Click the **View list of allowed devices not currently connected to the network** link.

   The list displays.



6. Select the check box for a device.
7. Use the **Add** button, **Edit** button, and **Remove from the List** button as needed.
8. Click the **Apply** button.

   Your changes take effect.

Use Keywords to Block Internet Sites

You can use keywords to block certain Internet sites from your network. You can use blocking all the time or based on a schedule.

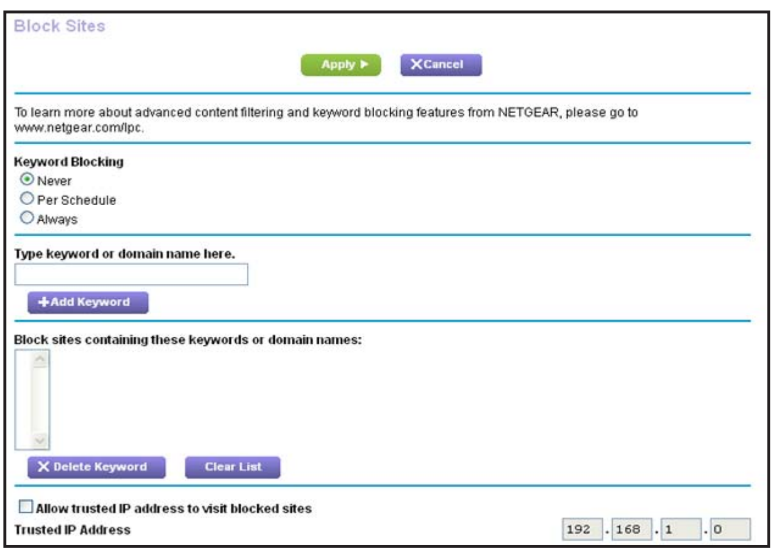
➤ **To block Internet sites:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
4. Select **ADVANCED > Security > Block Sites**.



5. Select a keyword blocking option:
   - **Per Schedule**. Turn on keyword blocking according to ta schedule that you set. (See *Schedule When to Block Internet Sites and Services* on page 50.)
   - **Always**. Turn on keyword blocking all the time, independent of the Schedule screen.
6. In the **keyword** field, enter a keyword or domain that you want to block.

For example:

- Specify XXX to block http://www.badstuff.com/xxx.html.
- Specify .com if you want to allow only sites with domain suffixes such as .edu or .gov.
- Enter a period (**.**) to block all Internet browsing access.

7. Click the **Add Keyword** button.

   The keyword is added to the keyword list. The keyword list supports up to 32 entries.

8. Click the **Apply** button.

   Keyword blocking takes effect.

Delete Keywords from the List to Be Blocked

➢ **To delete keywords from the list:**

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://routerlogin.net** or **http://routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

   The user name is **admin**. The default password is **admin**. The user name and password are case-sensitive.

   The BASIC Home screen displays.

4. Select **ADVANCED > Security > Block Sites**.
5. Do one of the following:
   - To delete a single word, select it and click the **Delete Keyword** button.

     The keyword is removed from the list.

   - To delete all keywords on the list, click the **Clear List** button.

     All keywords are removed from the list.

6. Click the **Apply** button.

   Your changes are saved.

Block Services from the Internet

You can block Internet services on your network based on the type of service. You can block the services all the time or based on a schedule.

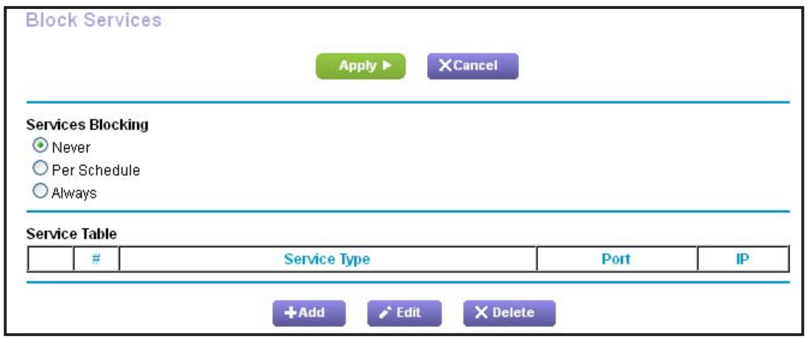
- **To block services:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

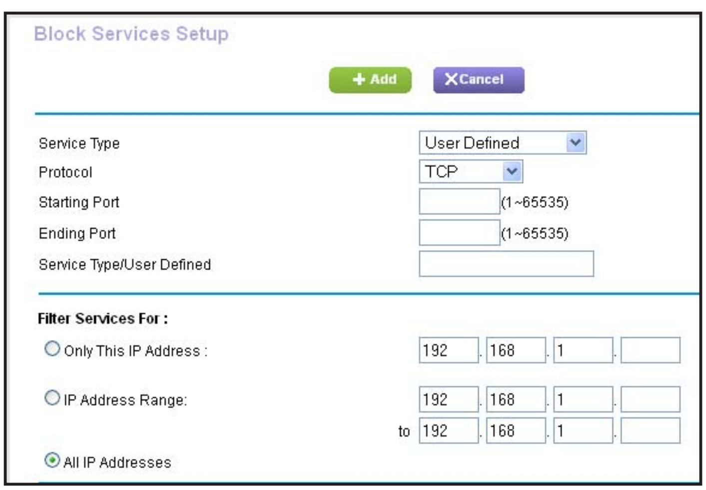
   The BASIC Home screen displays.
4. Select **ADVANCED > Security > Block Services**.



5. Specify when to block the services:
   - To block the services all the time, select the **Always** radio button.
   - To block the services based on a schedule, select the **Per Schedule** radio button.

     For information about how to specify the schedule, see *Schedule When to Block Internet Sites and Services* on page 50.
6. Click the **Add** button.

   The Block Services Setup screen displays:



7. To add a service that is in the **Service Type** list, select the application or service.

   The settings for this service automatically display in the fields.

8. To add a service or application that is not the list, select **User Defined**.

   a. If you know that the application uses either TCP or UDP, select the appropriate protocol; otherwise, select **TCP/UDP** (both).

   b. Enter the starting port and ending port numbers.

      If the service uses a single port number, enter that number in both fields. To find out which port numbers the service or application uses, you can contact the publisher of the application, ask user groups or newsgroups, or search on the Internet.

9. Select a filtering option:
   - **Only This IP Address**. Block services for a single computer.
   - **IP Address Range**. Block services for a range of computers with consecutive IP addresses on your network.
   - **All IP Addresses**. Block services for all computers on your network.

10. Click the **Add** button.

    Your changes are saved.

Schedule When to Block Internet Sites and Services

When you schedule blocking, the same schedule is used to block sites and to block services. For information about how to specify what you want the router to block, see *Use Keywords to Block Internet Sites* on page 47 and *Block Services from the Internet* on page 48.

➤ **To schedule blocking:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

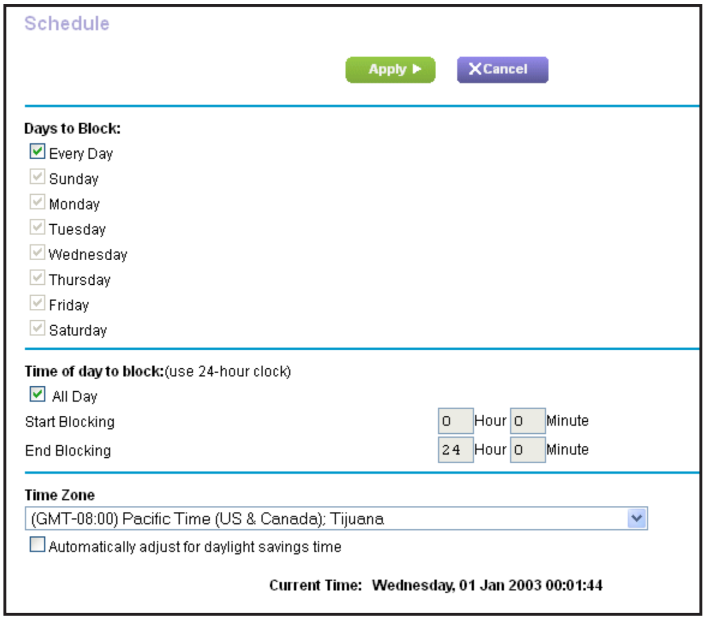
   A login screen displays.

3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.

4. Select **ADVANCED > Security > Schedule**.



5. Specify when to block keywords and services:
   - **Days to Block**. Select the check box for each day that you want to block the keywords or select the **Every Day** check box, which automatically selects the check boxes for all days.
   - **Time of Day to Block**. Select a start and end time in 24-hour format, or select **All Day** for 24-hour blocking.
6. Select your time zone from the list.
7. If you live in a region that observes daylight saving time, select the **Automatically adjust for daylight savings time** check box.
8. Click the **Apply** button.

   Your settings are saved.

Avoid Blocking on a Trusted Computer

You can exempt one trusted computer from blocking. The computer you exempt must have a fixed IP address. You can use the reserved IP address feature to specify the IP address. See *Reserve LAN IP Addresses* on page 104.

➢ **To specify a trusted computer:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.

4. Select **ADVANCED > Security > Block Sites**.
5. Scroll down and select the **Allow trusted IP address to visit blocked sites** check box.
6. In the **Trusted IP Address** field, enter the IP address of the trusted computer.
7. Click the **Apply** button.

   Your changes are saved.

Set Up Security Event Email Notifications

The router can email you its logs of router activity. The log records router activity and security events such as attempts to access blocked sites or services.

➢ **To set up email notifications:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

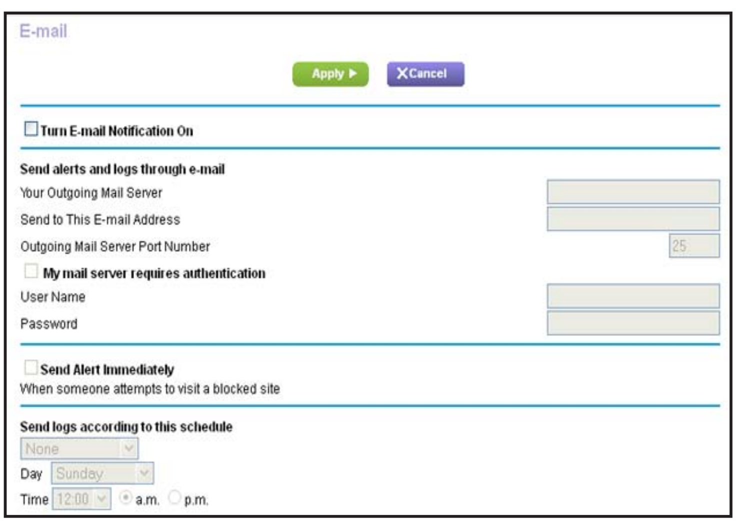
   A login screen displays.

3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.

4. Select **ADVANCED > Security > E-mail**.



5. Select the **Turn Email Notification On** check box.
6. In the **Your Outgoing Mail Server** field, enter the name of your ISP outgoing (SMTP) mail server (such as mail.myISP.com).

   You might be able to find this information in the configuration screen of your email program. If you leave this field blank, log and alert messages are not sent.
7. In the **Send to This E-mail Address** field, type the email address to which logs and alerts are to be sent.

   This email address is also used for the From address. If this field is blank, log and alert messages are not sent.
8. If your outgoing email server requires authentication, select the **My Mail Server requires authentication** check box.
   a. In the **User Name** field, type the user name for the outgoing email server.
   b. In the **Password** field, type the password for the outgoing email server.
9. (Optional) Select the **Send Alerts Immediately** check box.

   Email alerts are sent immediately when someone attempts to visit a blocked site.
10. To send logs based on a schedule, specify these settings:
    - From **Send logs according to this schedule** list, select the schedule type.
    - From the **Day** list, select the day.
    - From the **Time** list, select the time, and select the **am** or **pm** radio button.
11. Click the **Apply** button.

    Your settings are saved.

    Logs are sent automatically according to the schedule that you set. If the log fills before the specified time, it is sent. After the log is sent, it is cleared from the router memory. If the router cannot email the log and the log buffer fills, the router overwrites the log.

6. Tri-Band WiFi Connections

6

This chapter explains how the router manages WiFi connections for its WiFi bands and how you can control the relevant router settings.

This chapter includes the following sections:

- *Tri-Band WiFi*
- *Smart Connect*
- *Implicit Beamforming*

Tri-Band WiFi

Tri-band WiFi delivers 3.2 Gbps combined WiFi speeds through three dedicated WiFi bands—a 2.4 GHz band, plus two 5 GHz bands. This additional 5 GHz WiFi band allows you to double the WiFi bandwidth for dual-band devices.

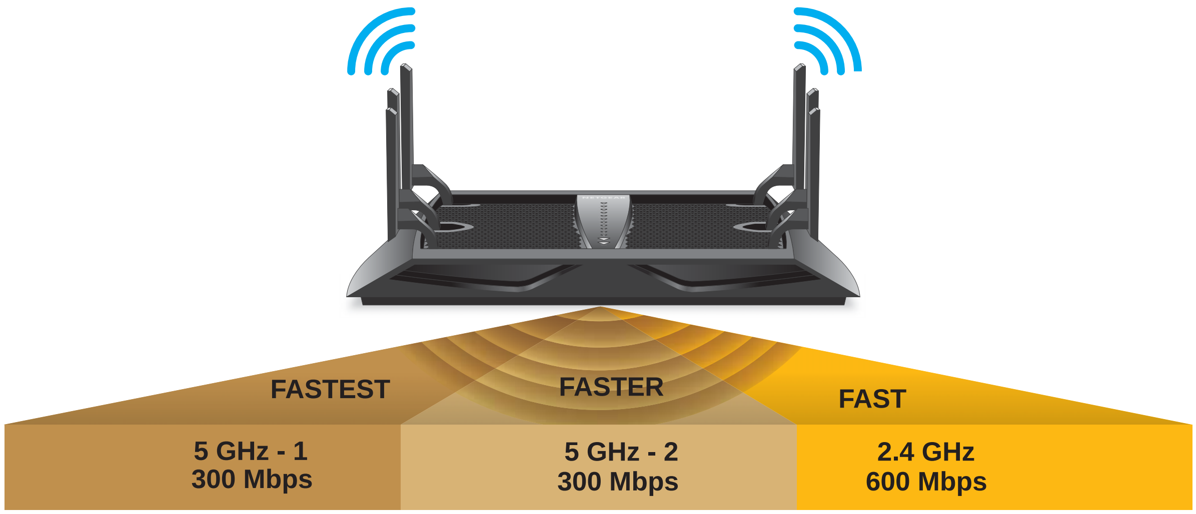


Figure 6. Tri-band WiFi doubles the available bandwidth for dual-band devices

Smart Connect intelligently selects the best WiFi band for each dual-band device to optimize connection speed and performance based on that device's speed and performance. The router automatically manages your WiFi connections, performing load balancing across the two 5 GHz radios. This additional WiFi bandwidth combined with the intelligence to segregate traffic based on WiFi speed and load balancing provides the best performance for multiple WiFi devices in the home.

How Tri-Band WiFi Improves Speed and Performance

Tri-band WiFi increases the available WiFi bandwidth for your network to reduce network congestion.

Typically a dual-band WiFi router shares bandwidth among all connected devices that are downloading data at the same time. So if you are watching a Netflix movie on your Internet-enabled large screen TV while your kids are watching a YouTube video on a smartphone, the router shares the bandwidth across these two devices. This is particularly unfair for the faster 802.11ac devices or three-stream (3x3) 802.11n devices because their speeds are reduced to the speed of the slowest device in the network. Even one slow device can bring down the entire network speed.

In this simplified example, the 5 GHz band is capable of a maximum speed of 1300 Mbps, but the actual speed could be limited by the device capability. For example, an Apple MacBook Pro with support for three streams is capable of the maximum 1300 Mbps but the

iPhone 5S with support for only single-stream 802.11n can achieve a maximum WiFi speed of only 150 Mbps. As more devices connect and begin downloading, the bandwidth is shared among them as well.

The following example of shared bandwidth shows a dual-band router in which the GHz WiFi band has a fast 640 Mbps capacity. If only one computer or device connects, the router can allocate a speed of up to 640 Mbps to that connection, assuming that the device is capable of that speed. When more devices connect to the 5 GHz band, they must share the bandwidth. If four devices connect, then the router divides its 640 Mbps capacity by 5, as shown in the following figure.

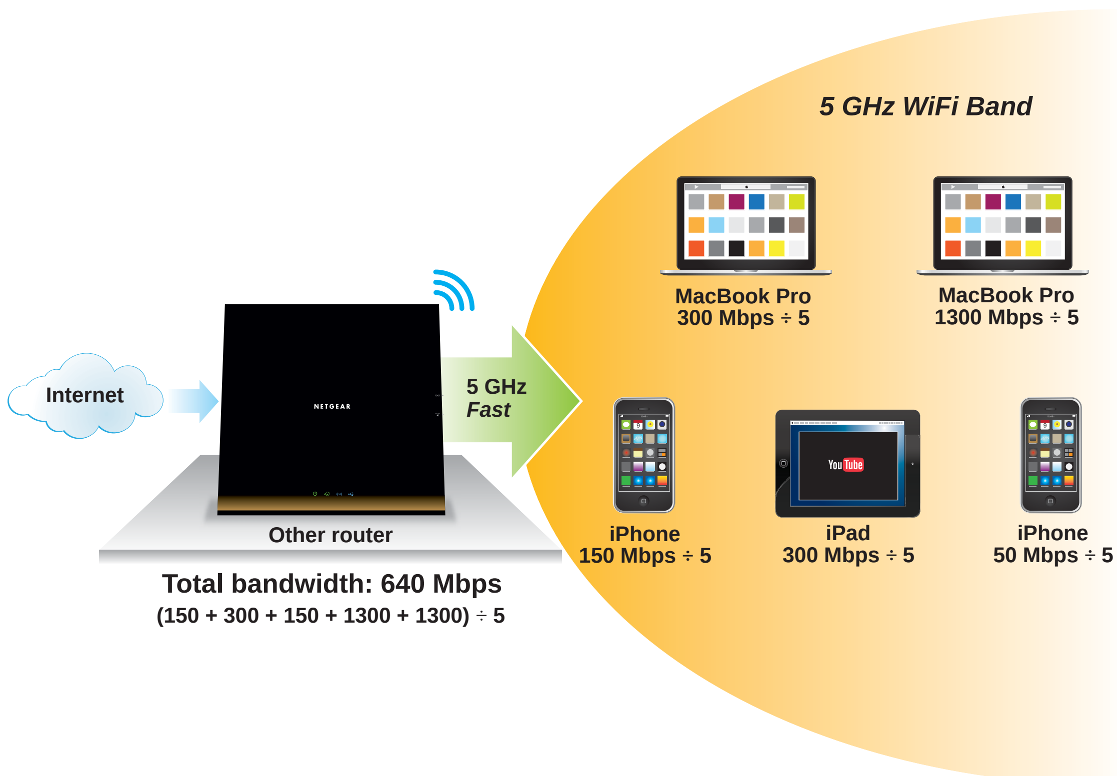


Figure 7. Dual-band WiFi network with one 5 GHz WiFi band

That means that in the network shown, a computer with a 1,300 Mbps capacity has an effective WiFi connection speed of 160 Mbps ($1300 \div 5$), and other devices would also see their WiFi speeds divided by 5.

Tri-band WiFi adds a second 5 GHz WiFi band to the network. This increases the available WiFi bandwidth, which can be compared to widening the road. In addition to widening the road, having two 5 GHz bands means that the router has dedicated 5 GHz bands. That's like

having two lanes in the wider road instead of one. The router automatically uses Smart Connect to allocate the fastest devices to the fast lane.

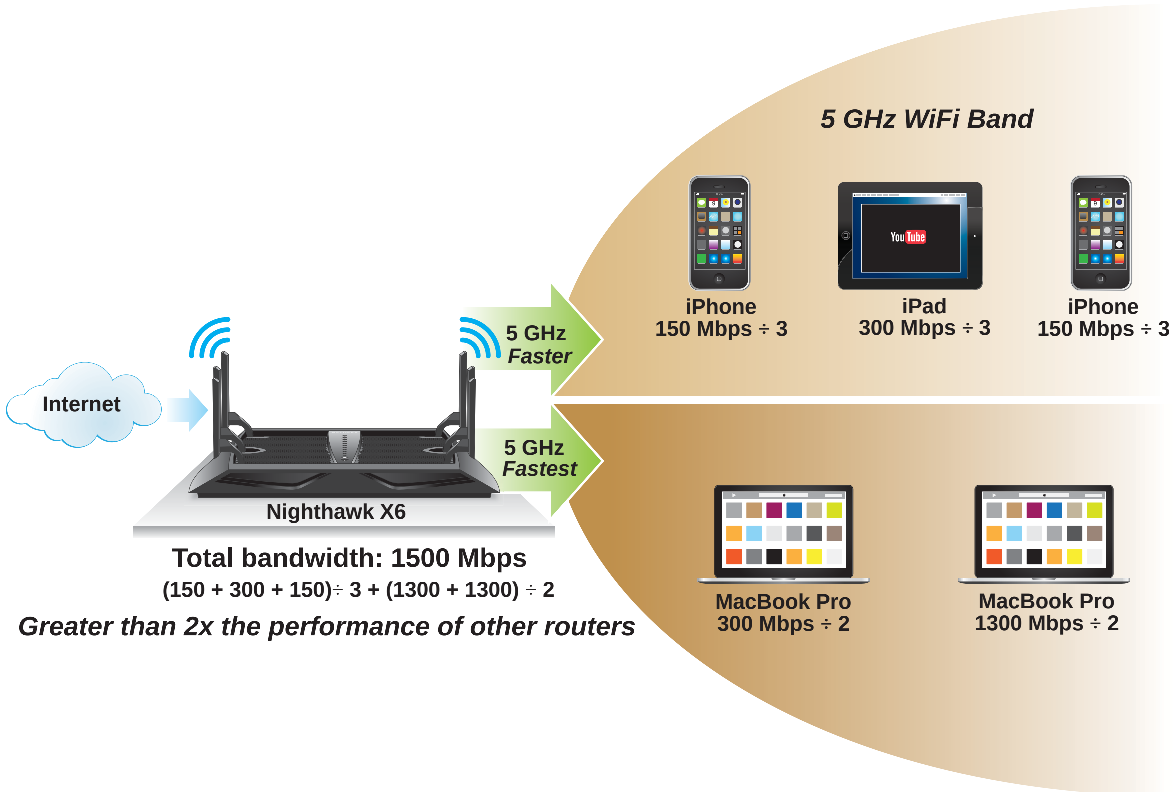


Figure 8. A tri-band network has two dedicated 5 GHz bands

In this tri-band network, the first 5 GHz band has a speed of 200 Mbps, and the second 5 GHz band has a speed of 1,300 Mbps.

The slower and faster devices are separated in different WiFi connections to ensure that you get the best speed on each device. So in the previous figure, all the three mobile devices are on one 5 GHz band with a combined maximum speed of 200 Mbps and the other 5 GHz WiFi band is used for the faster 802.11ac devices with a combined maximum speed of 1300 Mbps. Effectively both slower and faster devices can run faster and the overall network speed increases by more than two times, from 640 Mbps to 1500 Mbps.

Load Balancing

The router uses load balancing to distribute WiFi connections among all three WiFi bands, to ensure that both the WiFi bands are utilized. Load balancing avoids overloading a single 5 GHz band and ensures that both the WiFi bands are utilized and device connections are spread across the two bands.

For example, if three mobile devices are connected to one 5 GHz band, the fourth device is automatically connected to the other 5 GHz band.



Figure 9. Load balancing in a tri-band WiFi network

Slower devices like printers, older computers, or an IP camera connect to the 2.4 GHz band. Having two 5 GH bands prevents overloading when many devices use WiFi at the same time.

Benefits of Tri-Band WiFi

The tri-band WiFi network outperforms the dual-band network in several ways:

- More bandwidth is available.

  Even with more devices connected to the network, because the connections are spread across two different bands, each device gets a larger share of the available WiFi bandwidth. The computers in *Figure 8, A tri-band network has two dedicated 5 GHz bands* on page 57 have a 1,300 Mbps capacity. They share a 5 GHz WiFi band, and each has a WiFi connection speed of 650 Mbps, compared to 325 Mbps shown in *Figure 7, Dual-band WiFi network with one 5 GHz WiFi band* on page 56.

- Smart Connect directs WiFi traffic to the appropriate lane.

  With Smart Connect, older devices do not slow down faster devices.

- The router uses load balancing to avoid network congestion in each WiFi band.

  With load balancing, you don't have to share your WiFi connection with as many devices.

Smart Connect

Smart Connect balances your 5 GHz WiFi connections into two different radio bands: the 5 GHz radio 1 band and the 5 GHz radio 2 band. The router uses Smart Connect to choose the best radio band for your device to give you the best WiFi performance.

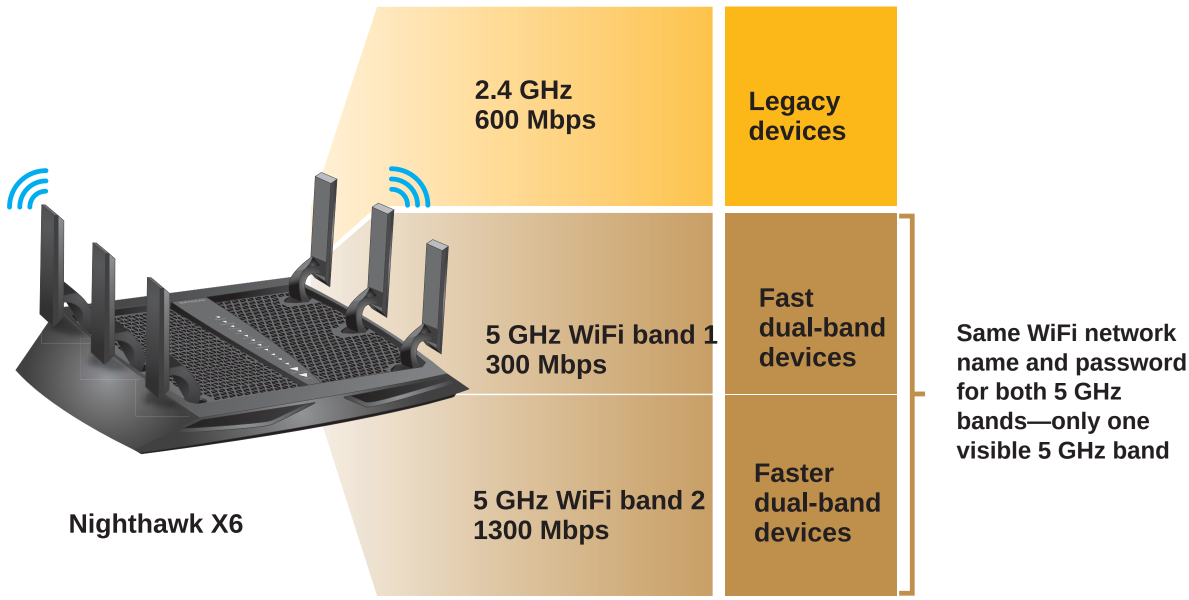


Figure 10. Smart Connect

For Smart Connect to work, both 5 GHz radio bands must use the same wireless network name (SSID) and network key (password). That means that when you connect to the router with WiFi, you see only one 5 GHz SSID that connects to both 5 GHz radio bands.

Note: If you enable Smart Connect and the SSID and passwords for both 5 GHz radio bands do not match, the WiFi settings for 5 GHz radio 1 overwrite the WiFi settings for 5 GHz radio 2.

Enable or Disable Smart Connect

➢ **To enable or disable Smart Connect:**

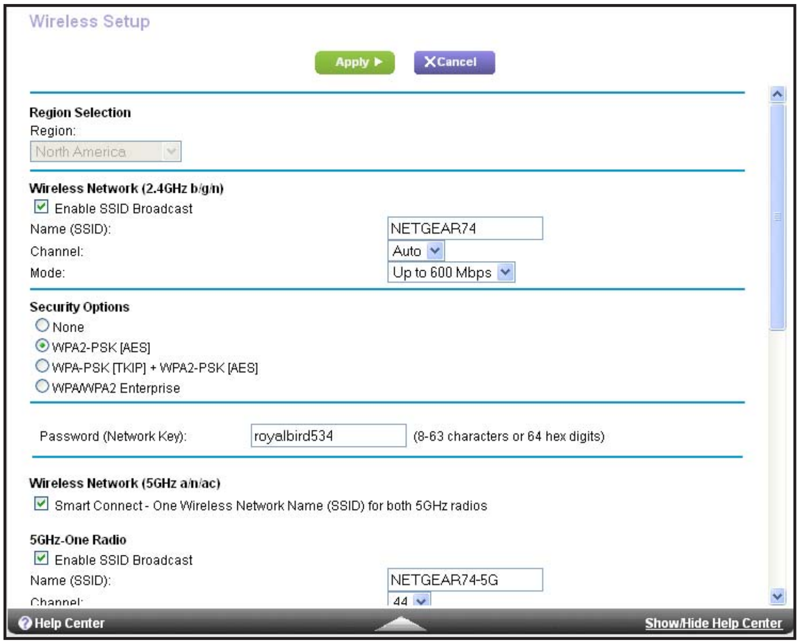
1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

The BASIC Home screen displays.

4. Select **Wireless**.



5. Select or clear the **Smart Connect – One Wireless Network Name (SSID) for both 5 GHz radios** check box.

   Selecting this check box turns on Smart Connect and clearing this check box turns off Smart Connect.

6. Click the **Apply** button.

   Your settings are saved.

Beamforming

Beamforming means that your router actively tracks clients and directs pinpoints Wifi to the client, rather than just blasting it out in all directions. This means better WiFi range and performance for your WiFi devices.

The router uses explicit and implicit beamforming to improve WiFi performance. Explicit beamforming requires the client to support beamforming typically 802.11ac clients support beamforming. Implicit beamforming means the router can support beamforming even with clients that do not support beamforming. This router supports implicit beamforming for both 2.4 GHz and 5 GHz clients, which means that it will provide beamforming benefits of better range and performance for all WiFi devices even older 802.11a/b/g/n, not just the latest WiFi clients.

Implicit Beamforming

Implicit beamforming means that the router can use information from client devices that support beamforming to improve the WiFi signal. This feature is enabled by default, but you can disable it.

➢ **To disable implicit beamforming:**

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
4. Select **ADVANCED > Advanced Setup > Wireless Settings**.

   The Advanced Wireless Setting screen displays.
5. Scroll down below the WPS Settings section of the screen and clear the **Enable Implicit BEAMFORMING** check box.
6. Click the **Apply** button.

   Your settings are saved.

Share USB Devices Attached to the Router

7

This chapter describes how to access and configure USB storage devices attached to your router. The USB port on the router can be used only to connect USB storage devices like flash drives or hard drives or a printer. Do not connect computers, USB modems, CD drives, or DVD drives to the router USB port.

This chapter contains the following sections:

- *USB Device Requirements*
- *Access a USB Device on the Network*
- *Back Up Windows Computers with ReadySHARE Vault*
- *Back Up Mac Computers with Time Machine*
- *Control Access to the USB Device*
- *Use FTP Within the Network*
- *View Network Folders on a USB Device*
- *Add a Network Folder on a USB Device*
- *Edit a Network Folder on a USB Device*
- *Approve USB Devices*
- *Safely Remove a USB Device*

For more information about ReadySHARE features, visit *www.netgear.com/readyshare*.

USB Device Requirements

The router works with most USB-compliant external flash and hard drives. For the most up-to-date list of USB devices that the router supports, visit *http://kbserver.netgear.com/readyshare*.

Some USB external hard drives and flash drives require you to load the drivers onto the computer before the computer can access the USB device. Such USB devices do not work with the router.

The router supports the following file system types for full read/write access:

- FAT16, FAT32
- NTFS
- NTFS with compression format enabled
- Ext2, Ext3, Ext4
- HFS
- HFS+

Access a USB Device on the Network

ReadySHARE lets you access and share a USB device connected to the router USB port. (If your USB device has special drivers, it is not compatible.)

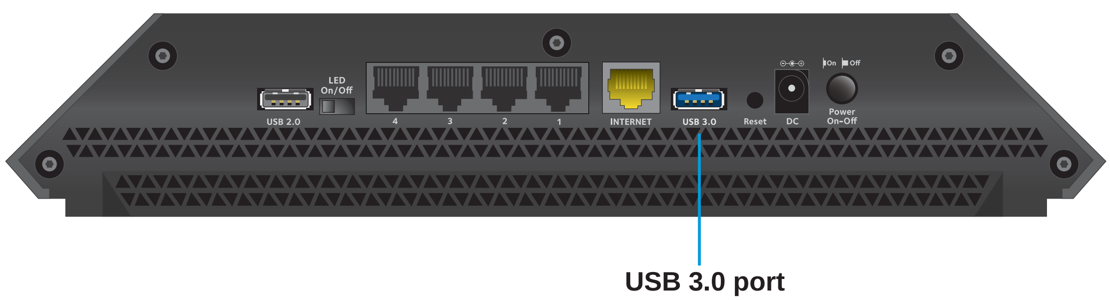


Figure 11. The blue USB 3.0 port on the rear panel of the router provides the fastest access

➢ **To connect a USB device:**

1. Insert your USB storage drive into a USB port on the rear panel of the router.

   NETGEAR recommends that you use the blue USB 3.0 port for the fastest access.

2. If your USB device has a power supply, connect it.

   You must use the power supply when you connect the USB device to the router.

   When you connect the USB device to the router USB port, it might take up to two minutes before it is ready for sharing. By default, the USB device is available to all computers on your local area network (LAN).

➤ **To access the USB device from a Mac:**

1. Select **Go > Connect to Server**.
2. Enter **smb://readyshare** as the server address.
3. Click the **Connect** button.

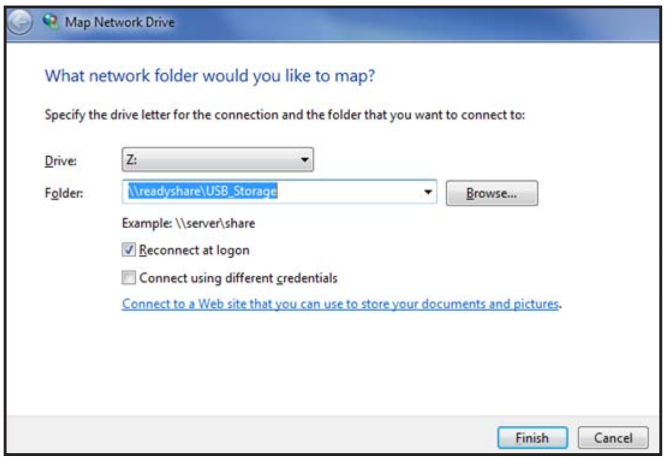
➤ **To access the USB device from a Windows computer:**

1. Select **Start > Run**.
2. Enter **\\readyshare** in the dialog box and click the **OK** button.

➤ **To map the USB device to a Windows network drive:**

1. Visit *www.netgear.com/readyshare.*
2. In the ReadySHARE USB Storage Access pane, click **PC Utility** link.

   The `readyshareconnect.exe` file is downloaded to your computer.
3. Launch `readyshareconnect.exe`.



4. Select the drive letter to map to the network folder.
5. (Optional) To connect to the USB device as a different user, select the **Connect using different credentials** check box and do the following:
   a. Type the user name and password.
   b. Click the **OK** button.
6. Click the **Finish** button.

   The USB device is mapped to the drive letter that you specified.

Back Up Windows Computers with ReadySHARE Vault

Your router comes with free backup software for all the Windows computers in your home. Connect a USB hard disk drive (HDD) to the USB port on your router for centralized, continuous, and automatic backup.

➢ **To back up your Windows computer:**

1. Connect a USB HDD to a USB port on the router.

   The blue USB 3.0 port on the front of the router performs faster than the USB 2.0 port on the rear panel of the router.

2. Install the genie app on each Windows computer.

   To download the genie app, visit *www.netgear.com/genie*.

3. Download ReadySHARE Vault from *www.netgear.com/readyshare* and install it on each Windows computer.
4. Launch ReadySHARE Vault.
5. Use the dashboard or the **Backup** tab to set up and run your backup.

Back Up Mac Computers with Time Machine

You can use Time Machine to back up your Mac computers onto a USB hard drive that is connected to one of the router’s USB ports. You can access the connected USB hard drive from your Mac with a wired or wireless connection to your router.

Set Up a USB Hard Drive on a Mac

NETGEAR recommends that you use a new USB HDD or format your old USB disk to do the Time Machine backup for the first time. Use a blank partition to prevent some issues during backup using Time Machine. The router supports GUID or MBR partitions.

➢ **To format your USB hard disk drive and specify partitions:**

1. Physically connect the USB hard drive to your Mac.
2. On your Mac, go to **Spotlight** (or the magnifying glass) at the top right of the screen and search for **Disk Utility**.
3. To format your USB device, open the Disk Utility, click the **Erase** tab, and click the **Erase** button.
4. Click the **Partition** tab.
5. Click **Partition Layout** and set the number of partitions that you want to use.
6. Click the **Options** button.

   The Partition options display.

7. Select the **GUID Partition Table** or **Master Boot Record** radio button.
8. For the format, select **Mac OS Extended (Journaled)**.
9. Click the **OK** button.
10. Click the **Apply** button.

    Your settings are saved.

Prepare to Back Up a Large Amount of Data

Before you back up a large amount of data with Time Machine, NETGEAR recommends that you follow this procedure.

➤ **To prepare to back up a large amount of data:**

1. Upgrade the operating system of the Mac computer.
2. Verify and repair the backup disk and the local disk.
3. Verify and repair the permissions on the local disk.
4. Set Energy Saver:
   a. From the **Apple** menu, select **System Preferences**.
   b. From the **View** menu, select **Energy Saver**.
   c. Click the **Power Adapter** tab.
   d. Select the **Wake for Wi-Fi network access** check box.
   e. Click the **Back arrow** to save the changes and exit the screen.
5. Modify your security settings:
   a. From the **Apple** menu, select **System Preferences**.
   b. From the **View** menu, select **Security**.
   c. Click the **Advanced** button at the bottom of the screen.
   d. Leave the **Log out after minutes of inactivity** check box cleared.

Use Time Machine to Back Up onto a USB Hard Drive

You can use Time Machine to back up your Mac computers onto a USB hard disk drive that is connected to one of the router’s USB ports.

➤ **To back up your Mac onto a USB hard drive:**

1. Prepare your USB device with a compatible format and partitions.

   See *Set Up a USB Hard Drive on a Mac* on page 65.

   If you plan to back up a large amount of data, see *Prepare to Back Up a Large Amount of Data* on page 66.

2. Insert your USB storage drive into a USB port on the router.

   Note: If your USB device has a power supply, you must use it when you connect the USB device to the router.

   The blue USB 3.0 port on the front of the router performs faster than the USB 2.0 port on the rear panel of the router.

   When you connect the USB device to the router USB port, it might take up to two minutes before it is ready for sharing. By default, the USB device is available to all computers on your local area network (LAN).

3. On your Mac computer, select **Go > Connect to Server**.
4. Type **afp://routerlogin.net**.
5. When prompted to enter your name and password, select the **Guest** radio button.
6. Click the **Connect** button.

   A list of connected devices displays. This list includes the name admin when you log in as admin.

7. From the **Apple** menu, select **System Preferences**.
8. Open Time Machine.
9. Click the **Select Backup Disk** button and select your USB device from the list.
10. Click the **Use for Backup** button.

    Note: If you do not see the USB partition that you want in the Time Machine disk list, go to Mac finder and click that USB partition. It displays in the Time Machine list.

11. When prompted to enter your name and password, select the **Guest** radio button and click the **Connect** button.

When the setup is complete, the Mac automatically schedules a full backup. You can back up immediately if you want.

Control Access to the USB Device

You can specify the device name, workgroups, and network folders for your USB device.

➢ **To specify the USB access settings:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

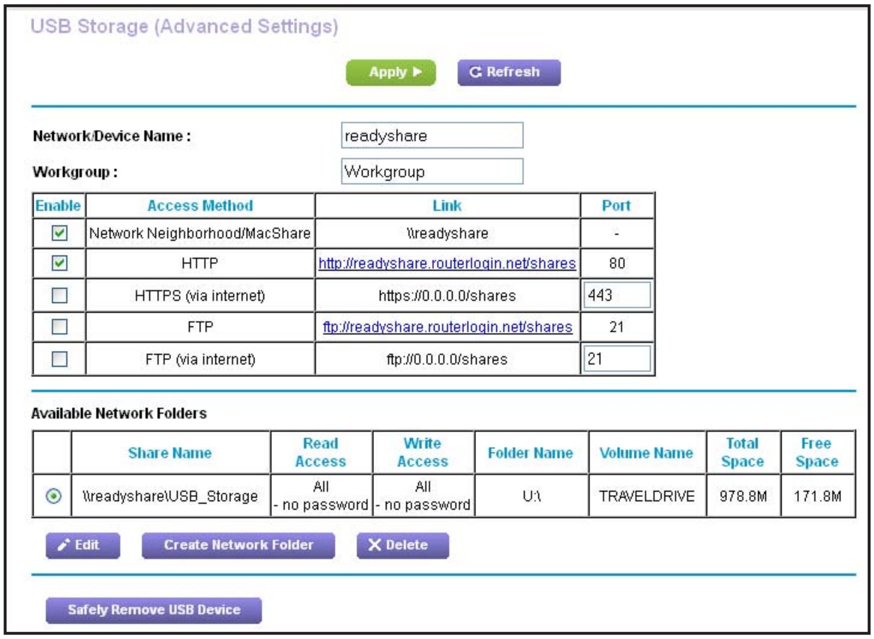
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.

4. Select **ADVANCED > USB Storage > Advanced Settings**.

The USB Storage (Advanced Settings) screen displays.



5. Specify access to the USB storage device:
   - **Network Device Name**. This is the name used to access the USB device connected to the router. The default is readyshare.
   - **Workgroup**. If you are using a Windows workgroup rather than a domain, the workgroup name is displayed here. The name works only in an operating system that supports NetBIOS, such as Microsoft Windows.
   - **Access Method**. Select the check boxes for the access methods that you want:
     - **Network Neighborhood/MacShare**. Enabled by default.
     - **HTTP**. Enabled by default. You can type **http://readyshare.routerlogin.net/shares** to access the USB device.
     - **HTTP (via Internet)**. Disabled by default. If you enable this feature, remote users can type **http://**<*public IP address/shares*> (for example, http://1.1.10.102/shares) or a URL domain name to access the USB device over the Internet. This feature supports file uploading only.
     - **FTP**. Disabled by default.
     - **FTP (via Internet)**. Disabled by default. If you select this check box, remote users can access the USB device through FTP over the Internet. This feature supports both downloading and uploading of files.
6. If you changed the settings, click the **Apply** button.

   Your changes are saved.

Use FTP Within the Network

File Transfer Protocol (FTP) lets you send and receive large files faster.

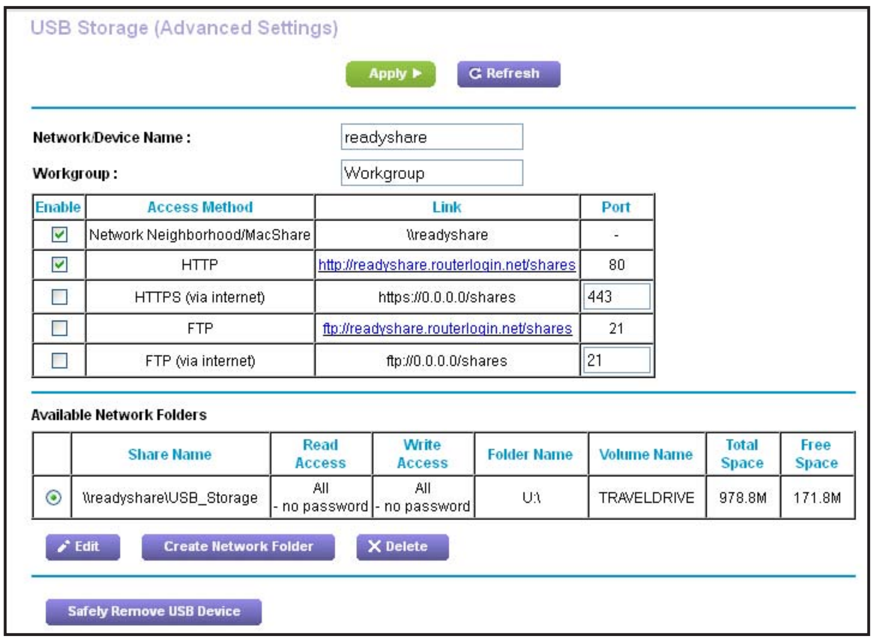
➢ **To set up FTP access:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
4. Select **ADVANCED > USB Storage > Advanced Settings**.



5. Select the **FTP** check box.
6. Click the **Apply** button.

   Your changes are saved.

View Network Folders on a USB Device

You can view or change the network folders on the USB storage device.

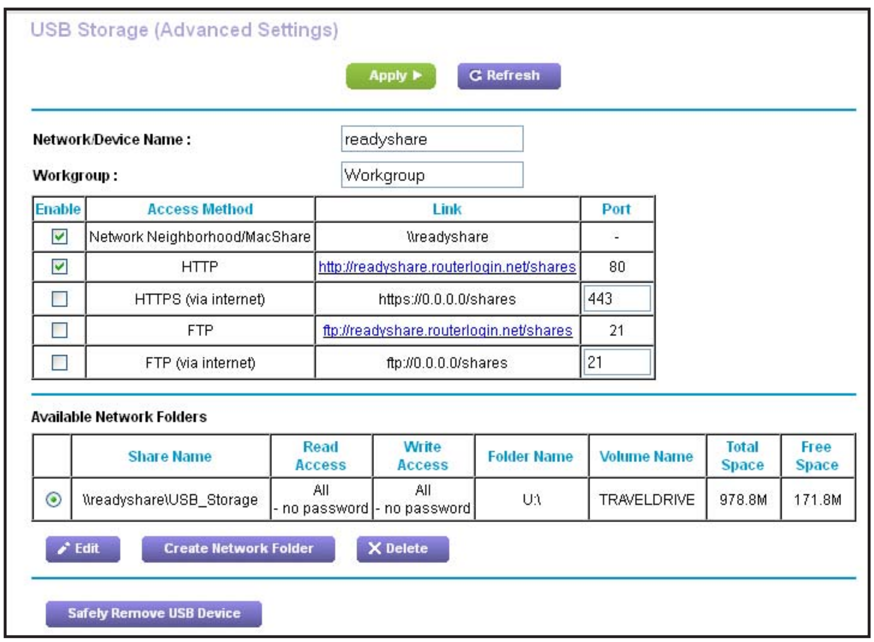
➤ **To view network folders:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
4. Select **ADVANCED > USB Storage > Advanced Settings**.



5. Scroll down to the Available Networks Folder section of the screen, and adjust the following settings:
   - **Share Name**. If only one device is connected, the default share name is USB_Storage. (Some router models have more than one USB port.)

     You can click the name or you can type it in the address field of your web browser. If Not Shared is shown, the default share has been deleted and no other share for the root folder exists. Click the link to change this setting.

- **Read Access and Write Access**. Show the permissions and access controls on the network folder. All–no password (the default) allows all users to access the network folder. The password for admin is the same one that you use to log in to the router.
- **Folder Name**. Full path of the network folder.
- **Volume Name**. Volume name from the storage device (either USB device or HDD).
- **Total Space and Free Space**. Show the current utilization of the storage device.

Add a Network Folder on a USB Device

You can add network folders on the USB storage device.

➢ **To add a network folder:**

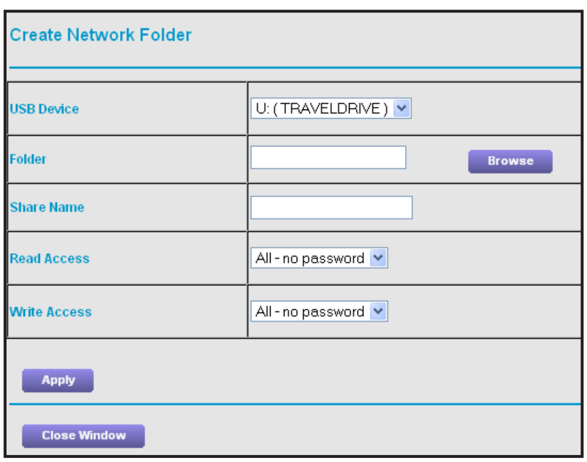
1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
4. Select **ADVANCED > USB Storage > Advanced Settings**.

   The USB Storage (Advanced Settings) screen displays.
5. Click the **Create Network Folder** button.



   If this screen does not display, your web browser might be blocking pop-ups. If it is, change the browser settings to allow pop-ups.
6. In the **USB Device** list, select the USB device.
7. Click the **Browse** button and in the **Folder** field, select the folder.

8. In the **Share Name** field, type the name of the share.
9. In the **Read Access** list and the **Write Access** list, select the settings that you want.

   The user name (account name) for All–no password is guest. The password for admin is the same one that is used to log in to the router. By default, it is password.

10. Click the **Apply** button.

    The folder is added on the USB device.

Edit a Network Folder on a USB Device

You can add network folders on the USB storage device.

➢ **To edit a network folder:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.

4. Select **ADVANCED > USB Storage > Advanced Settings**.

   The USB Storage (Advanced Settings) screen displays.

5. Click the **Edit** button.

   The Edit Network Folder screen displays the same settings shown in the Add a Network Folder screen.

6. Change the settings in the fields as needed.
7. Click the **Apply** button.

   Your changes are saved.

Approve USB Devices

For more security, you can set up the router to share only USB devices that you approve.

➢ **To approve USB devices:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

A login screen displays.

3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.

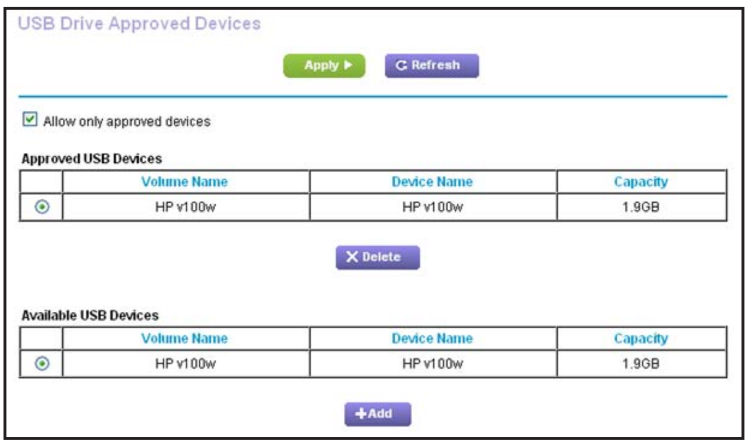
4. Select **ADVANCED > Advanced Setup > USB Settings.**



   By default the **Enable any USB Device connection to the USB port** radio button is selected. This setting lets you connect and access all your USB devices.

5. Select the **No** radio button.

6. Click the **Approved Devices** button.



   The approved and available USB devices display.

7. In the Available USB Devices list, select the drive that you want to approve.

8. Click the **Add** button.

   The USB device is added to the Approved USB Devices list.

9. Select the **Allow only approved devices** check box.

10. Click the **Apply** button.

    Your settings are saved.

11. To work with another USB device, first click the **Safely Remove USB Device** button for the currently connected USB device. Connect the other USB device, and repeat this process.

Safely Remove a USB Device

Before you physically disconnect a USB device from the router USB port, log in to the router and take the drive offline.

➢ **To remove a USB disk drive safely:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
4. Select **USB Storage > Basic Settings**.

   The USB Settings screen displays.
5. Click the **Safely Remove USB Device** button.

   This takes the drive offline.
6. Physically disconnect the USB device.

8. Access USB Devices Through the Internet

With Dynamic DNS, you can use the Internet to access a USB hard drive attached to the router's USB port router when you're not home. This chapter includes the following sections:

- *Access USB Devices Through the Internet*
- *Dynamic DNS*
- *Your Personal FTP Server*
- *Set Up Your Personal FTP Server*

For information about how to connect the USB device and specify its settings, see *Chapter 7, Share USB Devices Attached to the Router*.

Access USB Devices Through the Internet

You can access USB devices through the Internet when you're not home.

➤ **To access USB devices from a remote computer:**

1. Launch a web browser on a computer that is not on your home network.
2. Connect to your home router:
   - To connect with Dynamic DNS, type the DNS name.

     To use a Dynamic DNS account, you must enter the account information in the Dynamic DNS screen. See *Dynamic DNS* on page 78.
   - To connect without Dynamic DNS, type the router's Internet port IP address.

   You can view the router's Internet IP address on the BASIC Home screen.

You can use FTP to share files on a USB device connected to the router.

Set Up FTP Access Through the Internet

➤ **To set up FTP access:**

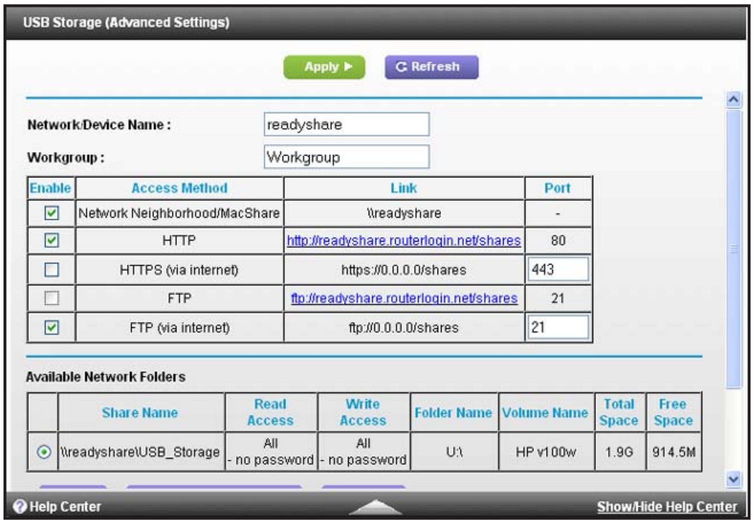
1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.

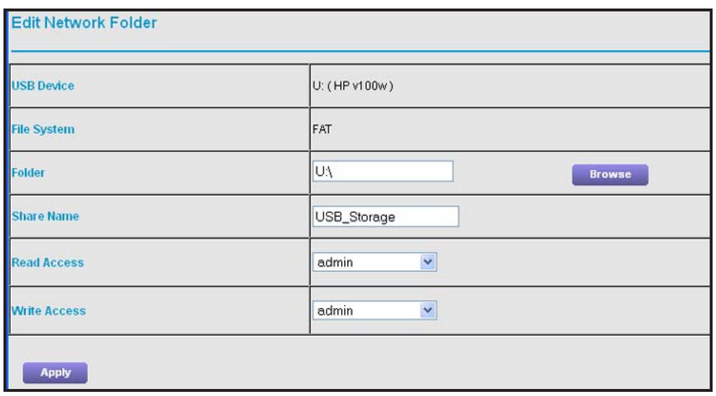
4. Select **ADVANCED > USB Storage > Advanced Settings**.



5. Select the **FTP (via Internet)** check box.
6. Click the **Apply** button.

   Your changes are saved.

7. To limit access to the admin user, click the **Edit** button.



8. In the **Read Access** list, select **admin**.
9. In the **Write Access** list, select **admin**.
10. Click the **Apply** button.

    Your changes are saved.

Access USB Devices Through the Internet with FTP

You must first set up FTP through Internet access as described in *Set Up FTP Access Through the Internet* on page 76.

➢ **To access a USB device with FTP from a remote computer:**

1. To download, launch an Internet browser.

2. To upload, use an FTP client such as filezilla.
3. Type **ftp://** and the Internet port IP address in the address field of the browser.

   For example, type **ftp://10.1.65.4**.

   If you are using Dynamic DNS, type the DNS name.

   For example, type **ftp://MyName.mynetgear.com**.
4. When prompted, log in:
   - To log in as admin, in the **user name** field, type **admin** and in the **password** field, type the same password that you use to log in to the router.
   - To log in as guest, in the **user name** field, enter **guest**.

     The guest user name does not have a password. To restrict access to the USB device, you can specify that only the admin user can access it. See *Control Access to the USB Device* on page 67.

   The files and folders of the USB device that your account has access to display. For example, you might see `share/partition1/directory1`.

Dynamic DNS

Internet service providers (ISPs) assign numbers called IP addresses to identify each Internet account. Most ISPs use dynamically assigned IP addresses. This means that the IP address can change at any time. You can use the IP address to access your network remotely, but most people don’t know what their IP addresses are or when this number changes.

To make it easier to connect, you can get a free account with a Dynamic DNS service that lets you use a domain name to access your home network. To use this account, you must set up the router to use Dynamic DNS. Then the router notifies the Dynamic DNS service provider whenever its IP address changes. When you access your Dynamic DNS account, the service finds the current IP address of your home network and automatically connects you.

If your ISP assigns a private WAN IP address (such as 192.168.x.x or 10.x.x.x), the Dynamic DNS service does not work because private addresses are not routed on the Internet.

Your Personal FTP Server

With your customized free URL, you can use FTP to access your network when you aren’t home through Dynamic DNS. To set up your FTP server, you must register for a free

NETGEAR Dynamic DNS (DDNS) service account and specify the account settings. See *Set Up a New Dynamic DNS Account* on page 79.

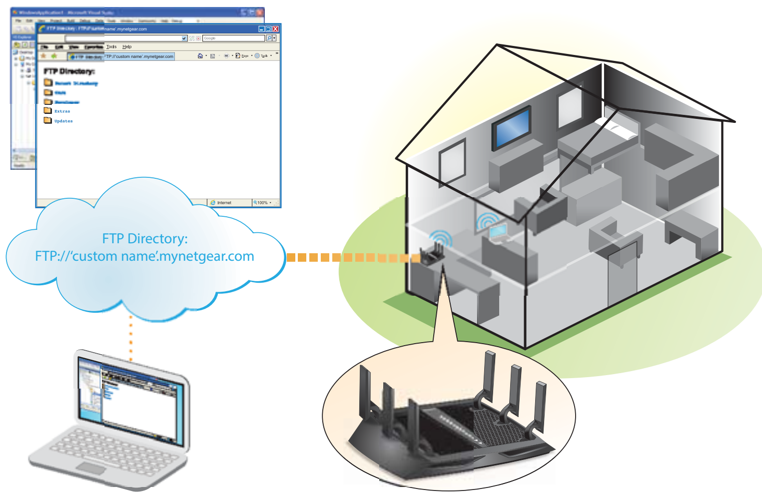


Figure 12. You can access your network through the Internet when you're not home

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Note: The router supports only basic DDNS and the login and password might not be secure. You can use DDNS with a VPN tunnel for a secure connection.

Set Up a New Dynamic DNS Account

➢ **To set up Dynamic DNS and register for a free NETGEAR account:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.

4. Select **ADVANCED > Advanced Settings > Dynamic DNS**.



5. Select the **Use a Dynamic DNS Service** check box.
6. In the **Service Provider** list, select **NETGEAR**.
7. Select the **No** radio button.
8. In the **Host Name** field, type the name that you want to use for your URL.

   The host name is sometimes called the domain name. Your free URL includes the host name that you specify and ends with mynetgear.com. For example, specify *MyName.mynetgear.com*.

9. In the **Email** field, type the email address for your account.
10. In the **Password (6-32 characters)** field, type the password for your account.
11. Click the **Register** button.
12. Follow the onscreen instructions to register for your NETGEAR Dynamic DNS service.

Specify a DNS Account That You Already Have

If you already have a Dynamic DNS account with NETGEAR no-ip, www.no-ip.com, or www.DynDNS.org, you can set up the router to use your account.

➢ **To set up Dynamic DNS if you already have an account:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

The BASIC Home screen displays.

4. Select **ADVANCED > Advanced Settings > Dynamic DNS**.



5. Select the **Use a Dynamic DNS Service** check box.
6. In the **Service Provider** list, select one of the following:
   - NETGEAR
   - www.no-ip.com
   - www.DynDNS.org
7. Select the **Yes** radio button.

   The screen adjusts and displays the **Show Status**, **Cancel**, and **Apply** buttons.
8. In the **Host Name** field, type the host name (sometimes called the domain name) for your account.
9. For a www.no-ip or www.DynDNS account, in the **User Name** field, type the user name for your account.
10. For a NETGEAR account at www.no-ip, in the **Email** field, type the email address for your account.
11. In the **Password (6-32 characters)** field, type the password for your DDNS account.
12. Click the **Apply** button.

    Your changes are saved.
13. To verify that your Dynamic DNS service is enabled in the router, click the **Show Status** button.

    A message displays the Dynamic DNS status.

Change the Dynamic DNS Settings

➢ **To change your settings:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
4. Select **ADVANCED > Advanced Settings > Dynamic DNS**.

   The Dynamic DNS screen displays.
5. Change your DDNS account settings as necessary.
6. Click the **Apply** button.

   Your changes are saved.

Set Up Your Personal FTP Server

➢ **To set up your personal account and use FTP:**

1. Get your free NETGEAR Dynamic DNS domain name.

   See *Your Personal FTP Server* on page 78.
2. Make sure that your Internet connection is working.

   Your router must use a direct Internet connection. It cannot connect to a different router to access the Internet.
3. Connect a USB hard disk drive to a USB port on the router.
4. Set up FTP access in the router.

   See *Set Up FTP Access Through the Internet* on page 76.
5. On a remote computer with Internet access, you can use FTP to access your router using ftp://yourname.mynetgear.com.

9. Use the Router as a Media Server

The router comes set up to work as a ReadyDLNA media server. You can set up the router to play music from iTunes Server and media from TiVo.

This chapter contains the following sections:

- *Specify ReadyDLNA Media Server Settings*
- *Play Music from a USB Device with iTunes Server*
- *Play Media from a USB Device on TiVo*

Specify ReadyDLNA Media Server Settings

By default, the router acts as a ReadyDLNA media server, which lets you view movies and photos on DLNA/UPnP AV-compliant media players, such as Xbox360, Playstation, and NETGEAR media players.

➤ **To specify media server settings:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
4. Select **ADVANCED > USB Storage > Media Server**.

   The Media Server (Settings) screen displays.
5. Specify the settings:
   - **Enable DLNA Media Server**. Select this check box to enable this device to act as a media server.
   - **Enable TiVo support**. Select this check box if you want to play ReadyNAS media on your TiVo device. See the *Play Media from a USB Device on TiVo* on page 86.
   - **Media Server Device Name**. Specify the name of the media server.
6. Click the **Apply** button.

   Your changes are saved.

Play Music from a USB Device with iTunes Server

iTunes Server lets you play music with your Windows or Mac iTunes app from a USB device that is connected to the router USB port. You can also use the Apple Remote app from an iPhone or iPad to play music on any AirPlay devices, such as Apple TV or AirPlay-supported receivers.



Figure 13. Play music on a USB device with iTunes

Supported music file formats are MP3, AAC, and FLAC. The maximum number of music files supported is 10,000.

➤ **To specify iTunes server settings:**

1. On your iPhone or iPad, find and connect to the WiFi network.
2. Launch the Remote app.
3. Click the **Add an iTunes Library** button.

   A passcode displays.

4. Specify the passcode in the router:
   a. Launch an Internet browser from a computer or wireless device that is connected to the network.
   b. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

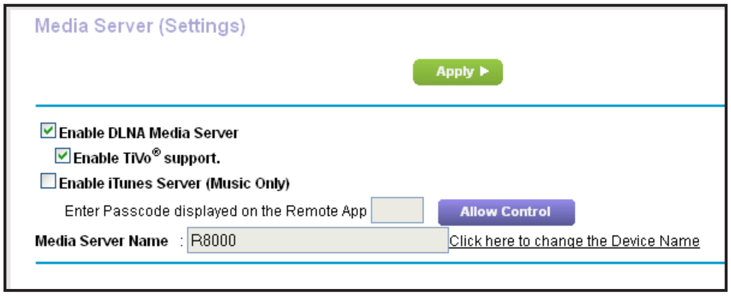
      A login screen displays.

   c. Enter the router user name and password.

      The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

      The BASIC Home screen displays.

d. Select **ADVANCED > USB Storage > Media Server**.



e. Make sure that the **Enable iTunes Media Server (Music Only)** check box is selected.

f. Enter the passcode.

g. Click the **Allow Control** button.

h. Click the **Apply** button.

Your changes are saved.

On your iPhone or iPad, the ReadySHARE music library displays in the Remote app.

You can play this music to AirPlay devices.

Play Media from a USB Device on TiVo

You can set up your TiVo to access media files stored on a USB device that is connected to your router. The TiVo must be on the same network as the router. This feature supports the following file formats:

- **Video**. See and play `mpeg1`, and `mpeg2` files.
- **Music**. See and play MP3 files.
- **Pictures**. View images in `jpg` format.

You can use the TiVo (Series 2 and up) Home Media Option to play photos and music on your Windows or Mac computer in your TiVo user interface.

➤ **To set up the router to work with TiVo:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.

4. Select **ADVANCED > USB Storage > Media Server**.

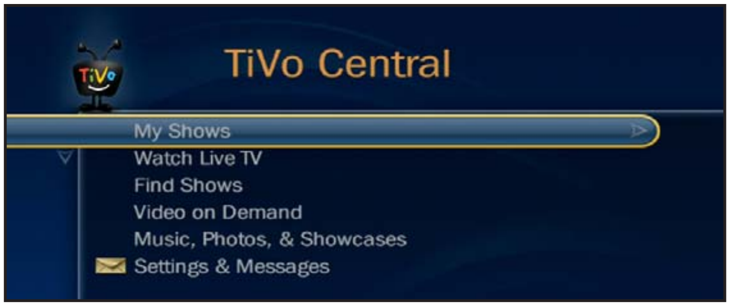
   The Media Server Settings screen displays.

5. Make sure that the **Enable TiVo support** check box is selected.
6. If you changed the setting, click the **Apply** button.

   Your settings are saved.

➤ **To play videos:**

1. On the TiVo, select **TiVo Central > My Shows**.



2. Go to the bottom of the list tand select the R8000.



➤ **To play music or view photos:**

1. On the TiVo, select **TiVo Central > Music, Photos, & Showcases**.



2. Select an item to play or watch.



➤ **To copy TiVo files to a computer:**

Use the TiVo Desktop accessory, available at *https://www3.tivo.com/store/accessories-software.do*.

10. Share a USB Printer

10

The ReadySHARE Printer utility lets you share a USB printer that is connected to the USB port on your router. You can share this USB printer among the Windows and Mac computers on your network.

This chapter contains the following sections:

Install the Printer Driver and Cable the Printer

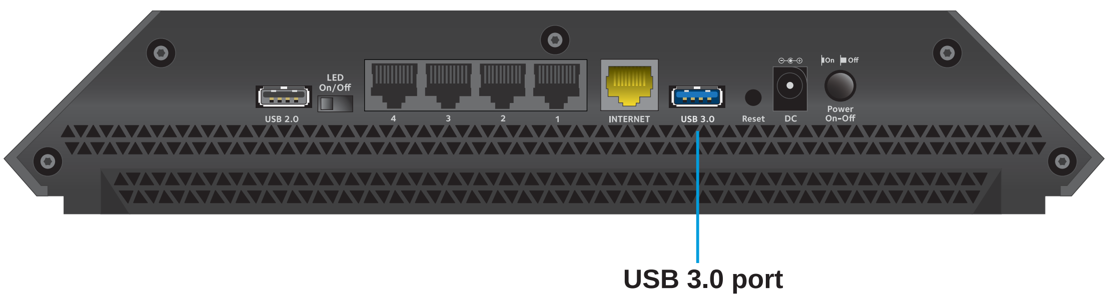
Some USB printer manufacturers (for example, HP and Lexmark) request that you do not connect the USB cable until the installation software prompts you to do so.

➢ **To install the driver and cable the printer:**

1. On each computer on your network that shares the USB printer, install the driver software for the USB printer.

   If you do not have the printer driver, contact the printer manufacturer.

2. Use a USB printer cable to connect the USB printer to the router USB port.



Download the ReadySHARE Printer Utility

The utility works on Windows and Mac computers.

➢ **To download the utility:**

1. Visit *www.netgear.com/readyshare*.



2. In the ReadySHARE Printer pane, click the **PC Utility** or **Mac Utility** link.
3. Follow the onscreen instructions to download the file.

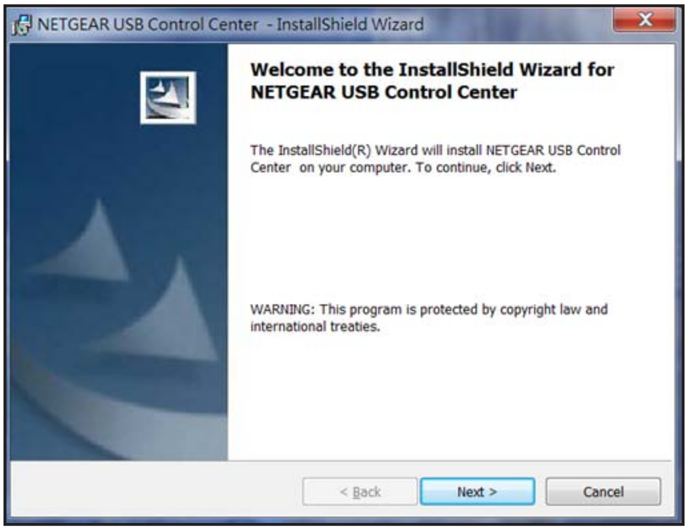
Install the ReadySHARE Printer Utility

You must install the ReadySHARE Printer utility on each computer that will share the printer. After you install it, the utility displays as NETGEAR USB Control Center on your computer.

➤ **To install the utility:**

1. Double-click the ReadySHARE Printer utility setup file that you downloaded.

   The InstallShield wizard displays.



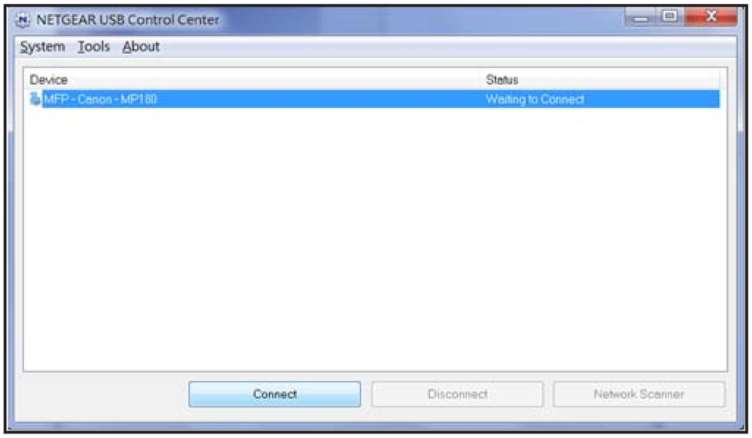
2. Follow the wizard instructions to install NETGEAR USB Control Center.

   After the InstallShield Wizard completes the installation, the NETGEAR USB Control Center prompts you to select a language:



3. Select a language from the list and click the **OK** button.

The NETGEAR USB Control Center displays the main screen.



Some firewall software, such as Comodo, blocks NETGEAR USB Control Center from accessing the USB printer. If you do not see the USB printer displayed in the screen, you can disable the firewall temporarily to allow the utility to work.

4. Select the printer and click the **Connect** button.

   The printer status changes to Manually connected by *Mycomputer*. Now, only your computer can use the printer.

5. Click the **Disconnect** button.

   The status changes to Available. Now all computers on the network can use the printer.

6. To exit the utility, select **System > Exit**.

Use the Shared Printer

For each computer, after you click the **Connect** and **Disconnect** buttons once, the utility automatically manages the printing queue and handling. By default, the utility starts automatically whenever you log on to Windows and runs in the background.

➢ **To manually connect and print:**

1. Click the **NETGEAR USB Control Center** icon .

   The main screen displays.

2. Click the **Connect** button.

   The printer status changes to Manually connected by *Mycomputer*. Now, only the computer you are using can use this printer.

3. Use the print feature in your application to print your document.
4. To release the printer so that all computers on the network can use it, click the **Disconnect** button.

➢ **To print and release the printer to any computer on the network:**

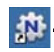
1. To print your document, use the print feature in your application.

   The NETGEAR USB Control Center automatically connects your computer to the USB printer and prints the document. If another computer is already connected to the printer, your print job goes into a queue to wait to be printed.

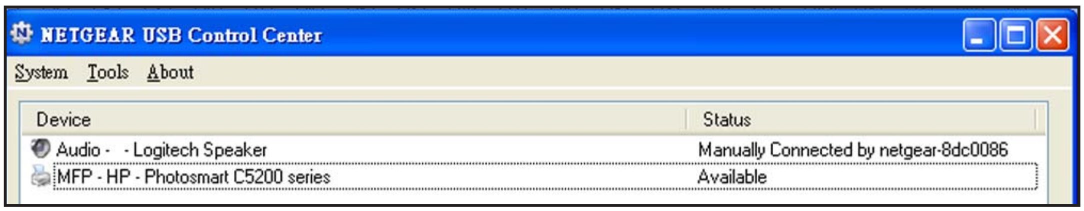
2. If your document does not print, use the NETGEAR USB Control Center to check the status. See *View or Change the Status of a Printer* .

View or Change the Status of a Printer

➢ **To view or change the status:**

1. Click the **NETGEAR USB Control Center** icon .

   The main screen displays.



   The Status column shows the status for each device:

   - **Available**. No print jobs are in process. You can use the USB printer from any computer in the network.
   - **Connected**. Your computer is connected to the printer and will be released when your print job is done.
   - **Manually Connected by**. Only the connected computer can use the printer.
   - **Waiting to Connect**. Your computer is not connected to the shared printer yet.

2. To print from your computer when the status shows Manually connected by *another computer*, click the **Disconnect** button.

   The printer is released from the connection and the status changes to Available.

3. To print from your computer when the status shows Waiting to Connect:

   a. Click the **Connect** button.

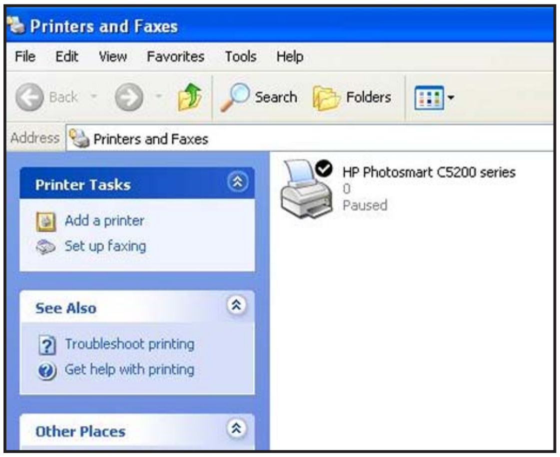
      The printer status changes to Manually connected by *Mycomputer*. Now, only your computer can use the printer.

   b. To allow the printer to be shared, click the **Disconnect** button.

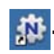
      The printer is released from the connection and the status changes to Available.

Use the Scan Feature of a Multifunction USB Printer

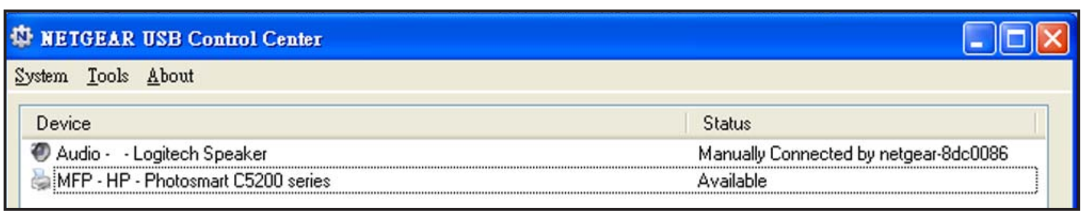
If your USB printer supports scanning, you can also use the USB printer for scanning. For example, the USB printer displayed in the Windows Printers and Faxes window is ready for print jobs.



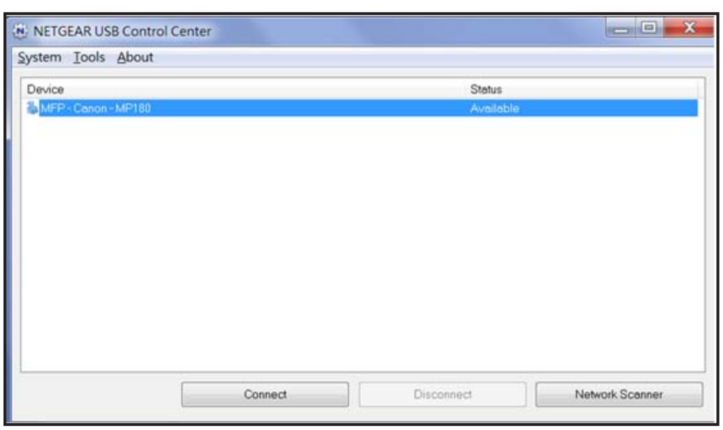
➤ **To use the scan feature of a multifunction USB printer:**

1. Click the **NETGEAR USB Control Center** icon .

   The main screen displays.



2. Make sure that the printer status shows as Available.
3. Click the **Network Scanner** button.



The scanner screen displays so that you can use the USB printer for scanning.

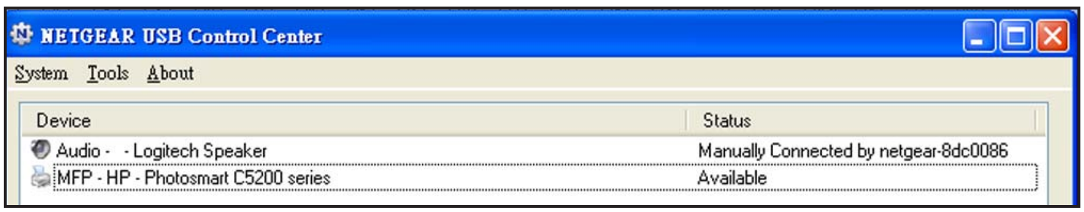
Change NETGEAR USB Control Center Settings

You can stop the NETGEAR USB Control Center from starting automatically when you log in to Windows. You can also change the language and specify the time-out to release the printer connection.

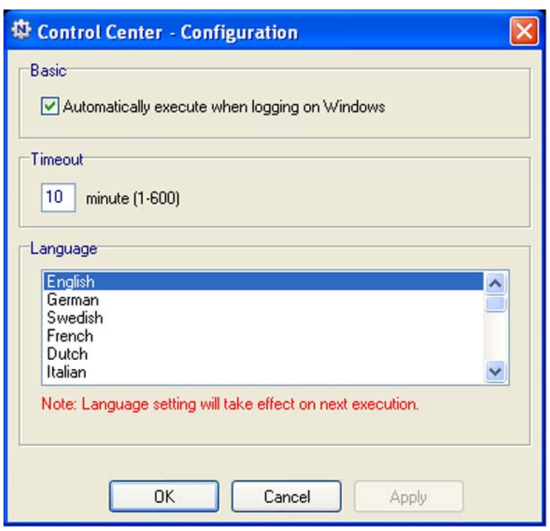
➢ **To turn off automatic NETGEAR USB Control Center startup:**

1. Click the **NETGEAR USB Control Center** icon .

   The main screen displays.



2. Select **Tools > Configuration**.



3. Clear the **Automatically execute when logging on Windows** check box.
4. Click the **OK** button.

   Your change is saved.

➢ **To change the language:**

1. Select **Tools > Configuration**.
2. In the **Language** list, select a language.
3. Click the **OK** button.

The next time NETGEAR USB Control Center starts, the language changes.

➤ **To specify the time-out:**

1. Select **Tools > Configuration**.
2. In the **Timeout** field, type the number of minutes.

   The time-out is the number of minutes that a computer holds its connection to the printer when the connection isn’t being used.
3. Click the **OK** button.

   Your change is saved.

11. Network Settings

The router comes ready for WiFi, Ethernet, and USB connections. You can customize the router's network settings. NETGEAR recommends that you install the router and connect it to the Internet before you change its network settings.

This chapter includes the following sections:

View WAN Settings

You can view or configure wide area network (WAN) settings for the Internet port. You can set up a DMZ (demilitarized zone) server, change the maximum transmit unit (MTU) size, and enable the router to respond to a ping to its WAN (Internet) port.

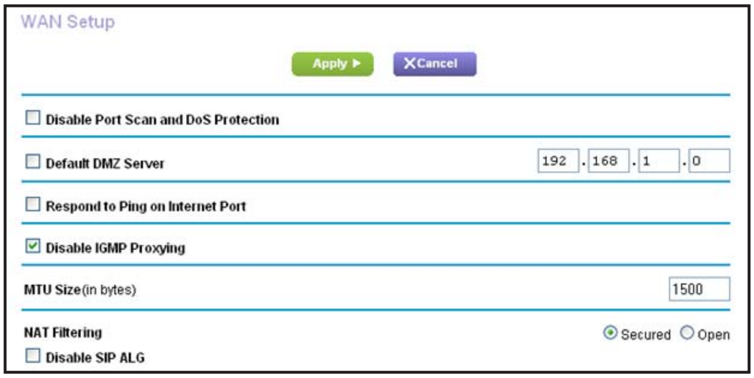
➢ **To view the WAN settings:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
4. **Select ADVANCED > Setup > WAN Setup**.



The following settings display:

- **Disable Port Scan and DoS Protection**. DoS protection protects your LAN against denial of service attacks such as Syn flood, Smurf Attack, Ping of Death, and many others. Select this check box only in special circumstances.
- **Default DMZ Server**. This feature is sometimes helpful when you are playing online games or videoconferencing, but it makes the firewall security less effective. See *Set Up a Default DMZ Server* on page 99.
- **Respond to Ping on Internet Port**. This feature allows your router to be discovered. Use this feature only as a diagnostic tool or if you have a specific reason.
- **Disable IGMP Proxying**. IGMP proxying allows a computer on the local area network (LAN) to receive the multicast traffic it is interested in from the Internet. If you do not need this feature, you can select this check box to disable it.
- **MTU Size (in bytes)**. The normal MTU (maximum transmit unit) value for most Ethernet networks is 1500 bytes, or 1492 bytes for PPPoE connections. Change the

MTU only if you are sure that it is necessary for your ISP connection. See *Change the MTU Size* on page 36.

- **NAT Filtering**. Network Address Translation (NAT) determines how the router processes inbound traffic. Secured NAT protects computers on the LAN from attacks from the Internet but might prevent some Internet games, point-to-point applications, or multimedia applications from working. Open NAT provides a much less secured firewall but allows almost all Internet applications to work.

5. Click the **Apply** button.

   Your changes are saved.

Set Up a Default DMZ Server

The default DMZ server feature is helpful when you are using some online games and videoconferencing applications that are incompatible with Network Address Translation (NAT). The router is programmed to recognize some of these applications and to work correctly with them, but other applications might not function well. In some cases, one local computer can run the application correctly if the IP address for that computer is entered as the default DMZ server.

WARNING:

DMZ servers pose a security risk. A computer designated as the default DMZ server loses much of the protection of the firewall and is exposed to exploits from the Internet. If compromised, the DMZ server computer can be used to attack other computers on your network.

The router usually detects and discards incoming traffic from the Internet that is not a response to one of your local computers or a service that you have configured in the Port Forwarding/Port Triggering screen. Instead of discarding this traffic, you can have the router forward the traffic to one computer on your network. This computer is called the default DMZ server.

➤ **To set up a default DMZ server:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.

4. Select **ADVANCED > Setup > WAN Setup**.

   The WAN Setup screen displays.

5. Select the **Default DMZ Server** check box.
6. Type the IP address.
7. Click the **Apply** button.

   Your change takes effect.

Change the Router's Device Name

The router's device name is R8000. This device name displays in file manager when you browse your network.

➢ **To change the router's device name:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.

4. Select **ADVANCED > Setup > LAN Setup**.

   The LAN Setup screen displays.

5. In the **Device Name** field, type a new name.
6. Click the **Apply** button.

   Your change is saved.

Change the LAN TCP/IP Settings

The router is preconfigured to use private IP addresses on the LAN side and to act as a DHCP server. The router's default LAN IP configuration is as follows:

- **LAN IP address**. 192.168.1.1
- **Subnet mask**. 255.255.255.0

These addresses are part of the designated private address range for use in private networks and are suitable for most applications. If your network requires a different IP addressing scheme, you can change these settings.

You might want to change these settings if you need a specific IP subnet that one or more devices on the network use, or if you have competing subnets with the same IP scheme.

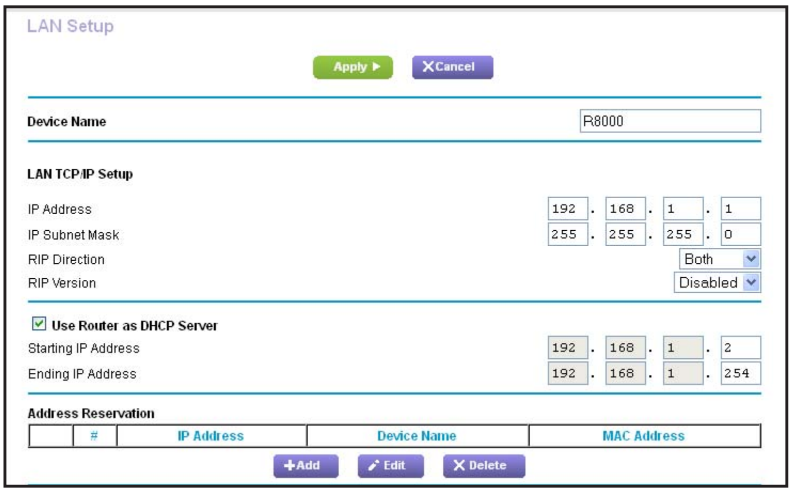
➤ **To change the LAN TCP/IP settings:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
4. Select **ADVANCED > Setup > LAN Setup**.



5. In the **IP Address** field, type the IP address.
6. In the **IP Subnet Mask**, type the subnet mask of the router.

   The IP address and subnet mask identify which addresses are local to a specific device and which must be reached through a gateway or router.
7. Change the RIP settings.

   Router Information Protocol (RIP) allows a router to exchange routing information with other routers.

   a. In the **RIP Direction** list, select one of the following:
      - **Both**. The router broadcasts its routing table periodically and incorporates information that it receives.
      - **Out Only**. The router broadcasts its routing table periodically.
      - **In Only**. The router incorporates the RIP information that it receives.

b. In the **RIP Version** list, select one of the following:
   - **Disabled**. This is the default setting.
   - **RIP-1**. This format is universally supported. It is adequate for most networks, unless you have an unusual network setup.
   - **RIP-2**. This format carries more information. Both RIP-2B and RIP-2M send the routing data in RIP-2 format. RIP-2B uses subnet broadcasting. RIP-2M uses multicasting.

8. Click the **Apply** button.

   Your changes are saved.

   If you changed the LAN IP address of the router, you are disconnected when this change takes effect.

9. To reconnect, close your browser, relaunch it, and log in to the router

Specify the IP Addresses That the Router Assigns

By default, the router acts as a Dynamic Host Configuration Protocol (DHCP) server. The router assigns IP, DNS server, and default gateway addresses to all computers connected to the LAN. The assigned default gateway address is the LAN address of the router.

These addresses must be part of the same IP address subnet as the router's LAN IP address. Using the default addressing scheme, define a range between 192.168.1.2 and 192.168.1.254, although you can save part of the range for devices with fixed addresses.

➢ **To specify the pool of IP addresses that the router assigns:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

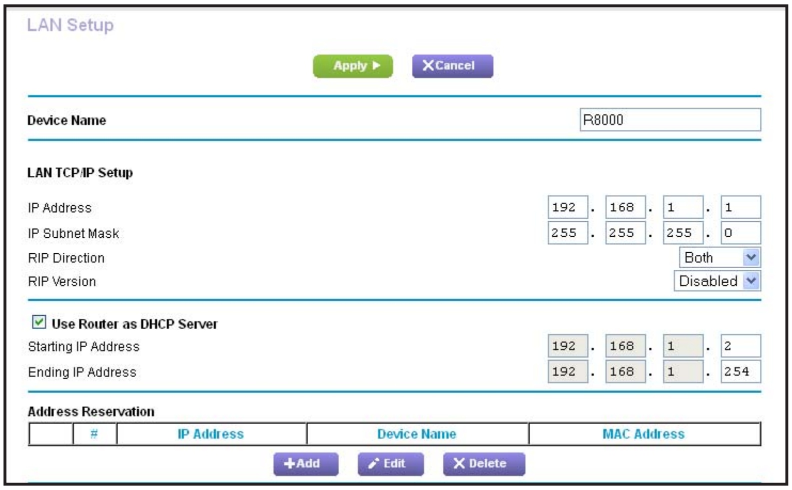
   A login screen displays.

3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.

4. Select **ADVANCED > Setup > LAN Setup**.



5. Make sure that the **Use Router as DHCP Server** check box is selected.
6. Specify the range of IP addresses that the router assigns:
   a. In the **Starting IP Address** field, type the lowest number in the range.

      This IP address must be in the same subnet as the router.

   b. In the **Ending IP Address** field, type the number at the end of the range of IP addresses.

      This IP address must be in the same subnet as the router.
7. Click the **Apply** button.

   Your settings are saved.

The router delivers the following parameters to any LAN device that requests DHCP:

- An IP address from the range that you define
- Subnet mask
- Gateway IP address (the router's LAN IP address)
- DNS server IP address (the router's LAN IP address)

Disable the DHCP Server Feature in the Router

By default, the router acts as a DHCP server. The router assigns IP, DNS server, and default gateway addresses to all computers connected to the LAN. The assigned default gateway address is the LAN address of the router.

You can use another device on your network as the DHCP server or specify the network settings of all your computers.

➤ **To disable the DHCP server feature in the router:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
4. Select **ADVANCED > Setup > LAN Setup**.
5. Clear the **Use Router as DHCP Server** check box.
6. Click the **Apply** button.
7. (Optional) If this service is disabled and no other DHCP server is on your network, set your computer IP addresses manually so that they can access the router.

Reserve LAN IP Addresses

When you specify a reserved IP address for a computer on the LAN, that computer always receives the same IP address each time it accesses the router’s DHCP server. Assign reserved IP addresses to computers or servers that require permanent IP settings.

➤ **To reserve an IP address:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
4. Select **ADVANCED > Setup > LAN Setup**.

   The LAN Setup screen displays.
5. In the Address Reservation section of the screen, click the **Add** button.
6. In the **IP Address** field, type the IP address to assign to the computer or server.

   Choose an IP address from the router’s LAN subnet, such as 192.168.1.x.
7. Type the MAC address of the computer or server.

Tip: If the computer is already on your network, you can copy its MAC address from the Attached Devices screen and paste it here.

8. Click the **Apply** button.

   The reserved address is entered into the table.

The reserved address is not assigned until the next time the computer contacts the router's DHCP server. Reboot the computer, or access its IP configuration and force a DHCP release and renew.

➢ **To edit a reserved address entry:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
4. Select **ADVANCED > Setup > LAN Setup**.

   The LAN Setup screen displays.
5. Select the radio button next to the reserved address.
6. Click the **Edit** button.
7. Change the settings.
8. Click the **Apply** button.

   Your changes are saved.

➢ **To delete a reserved address entry:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
4. Select **ADVANCED > Setup > LAN Setup**.

   The LAN Setup screen displays.

5. Select the radio button next to the reserved address.
6. Click the **Delete** button.

   The address is removed.

Use the WPS Wizard for WiFi Connections

The WPS Wizard helps you add a wireless computer or device to your WiFi network without typing the WiFi password.

➢ **To use the WPS Wizard:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.

4. Select **ADVANCED > WPS Wizard**.

   A note explaining WPS displays.

5. Click the **Next** button.
6. Select a setup method:
   - **Push button**. Click the **WPS** button on this screen.
   - **PIN Number**. The screen adjusts. Enter the client security PIN and click the **Next** button.
7. Within two minutes, go to the client device and use its WPS software to connect to the WiFi network.

   The WPS process automatically sets up your wireless computer with the network password when it connects. The router WPS screen displays a confirmation message.

Specify Basic WiFi Settings

The router comes with preset security. This means that the WiFi network name (SSID), network key (password), and security option (encryption protocol) are preset in the factory. You can find the preset SSID and password on the router label.

Note: The preset SSID and password are uniquely generated for every device to protect and maximize your wireless security.

NETGEAR recommends that you do not change your preset security settings. If you change your preset security settings, make a note of the new settings and store it in a safe place where you can easily find it.

If you use a wireless computer to change the SSID or other wireless security settings, you are disconnected when you click the **Apply** button. To avoid this problem, use a computer with a wired connection to access the router.

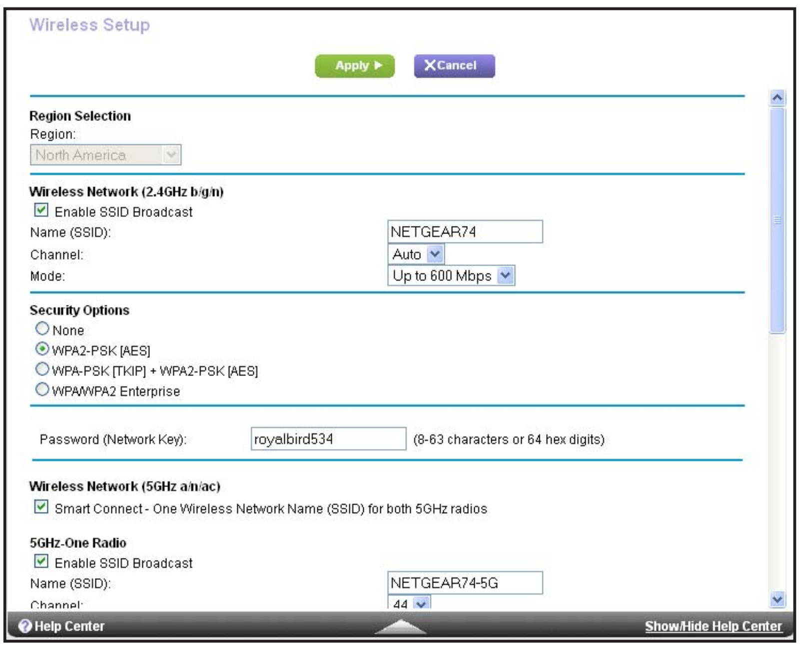
➢ **To specify basic wireless settings:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
4. Select **Wireless**.



You can specify the settings for the 2.4 GHz band and for the 5 GHz bands. If you enabled Smart Connect, both 5 GHz WiFi bands must use the same WiFi settings. If you

want to use different settings for each 5 GHz WiFi band, you must first disable Smart Connect (see *Enable or Disable Smart Connect* on page 59).

5. In the **Region** list, select your region.

   In some locations, you cannot change this setting.

6. To control the SSID broadcast, select or clear the **Enable SSID Broadcast** check box.

   When this check box is selected, the router broadcasts its network name (SSID) so that it displays when you scan for local WiFi networks on your computer or wireless device.

7. To change the network name (SSID), type a new name in the **Name (SSID)** field.

   The name can be up to 32 characters long and it is case-sensitive. The default SSID is randomly generated and is on the router's label. If you change the name, make sure to write down the new name and keep it in a safe place.

8. To change the wireless channel, select a number in the **Channel** list.

   In some regions, not all channels are available. Do not change the channel unless you experience interference (shown by lost connections or slow data transfers). If this happens, experiment with different channels to see which is the best.

   When you use multiple access points, it is better if adjacent access points use different channels to reduce interference. The recommended channel spacing between adjacent access points is four channels (for example, use Channels 1 and 5, or 6 and 10).

9. Click the **Apply** button.

   Your settings are saved.

   If you connected wirelessly to the network and you changed the SSID, you are disconnected from the network.

10. Make sure that you can connect wirelessly to the network with its new settings.

    If you cannot connect wirelessly, check the following:

    - Is your computer or wireless device connected to another wireless network in your area? Some wireless devices automatically connect to the first open network without wireless security that they discover.
    - Is your computer or wireless device trying to connect to your network with its old settings (before you changed the settings)? If so, update the wireless network selection in your computer or wireless device to match the current settings for your network.

Change the WiFi Mbps Settings

The data rate for high-speed transmissions is commonly identified as megabits per second (Mbps). By default, the router is set to operate with up to 600 Mbps in the 2.4 GHz WiFi band and up to 1,300 Mbps in the two 5 GHz WiFi bands. You can select slower settings.

Note: For information about using Smart Connect to intelligently manage your 5 GHz WiFi connections, see *Smart Connect* on page 59.

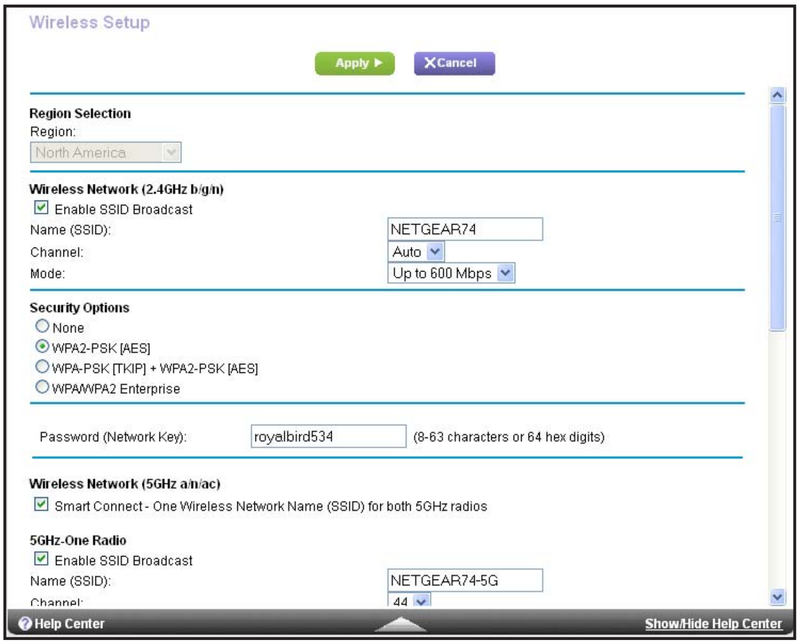
➤ **To change the WiFi Mbps settings:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
4. Select **Wireless**.



5. For the 2.4 GHz WiFi band, in the Wireless Network (2.4 GHz b/gn/n) section of the screen, select a setting from the **Mode** list.

   Up to 600 Mbps is the default setting. The other settings are **Up to 289 Mbps** and **Up to 54 Mbps**.
6. For the first 5 GHz WiFi band, in the 5 GHz-One Radio section of the screen, select a setting from the **Mode** list.

   Up to 1300 Mbps is the default setting, which allows 802.11ac and 802.11a wireless devices to join the network. The other settings are **Up to 600 Mbps** and **Up to 289 Mbps**.

7. For the second 5 GHz WiFi band, in the 5 GHz-Two Radio section of the screen, select a setting from the **Mode** list.

   If you enabled Smart Connect, both 5 GHz WiFi bands must use the same WiFi settings. If you want to use different settings for each 5 GHz WiFi band, you must first disable Smart Connect (see *Enable or Disable Smart Connect* on page 59).

8. Click the **Apply** button.

   Your settings are saved.

Change the WiFi Password or Security Level

Your router comes with preset WPA2 or WPA security. The password that you enter to connect to your network is unique to your router and is on the router label. NETGEAR recommends that you use the preset security, but you can change the settings. NETGEAR recommends that you do not disable security.

➢ **To change the WPA settings:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.

4. Select **Wireless**.

   The Wireless Setup screen displays.

5. Under Security Options, select a radio button for a WPA options.

   The WPA2 options use the newest standard for the strongest security, but some older computers and wireless devices cannot use WPA2. By default, the **WPA-PSK [TKIP] + WPA2-PSK [AES]** radio button is selected so that new or old computers and wireless devices can connect to the WiFi network by using either WPA2 or WPA security.

   The **Passphrase** field displays.

6. In the **Passphrase** field, enter the network key (password).

   It is a text string from 8 to 63 characters.

7. Write down the new password and keep it in a secure place for future reference.
8. Click the **Apply** button.

   Your changes are saved.

Set Up a Guest Network

Guest networks allows visitors at your home to use the Internet without using your wireless security key. You can add a guest network for the 2.4 GHz WiFi band and for each of the two 5.0 GHz WiFi bands.

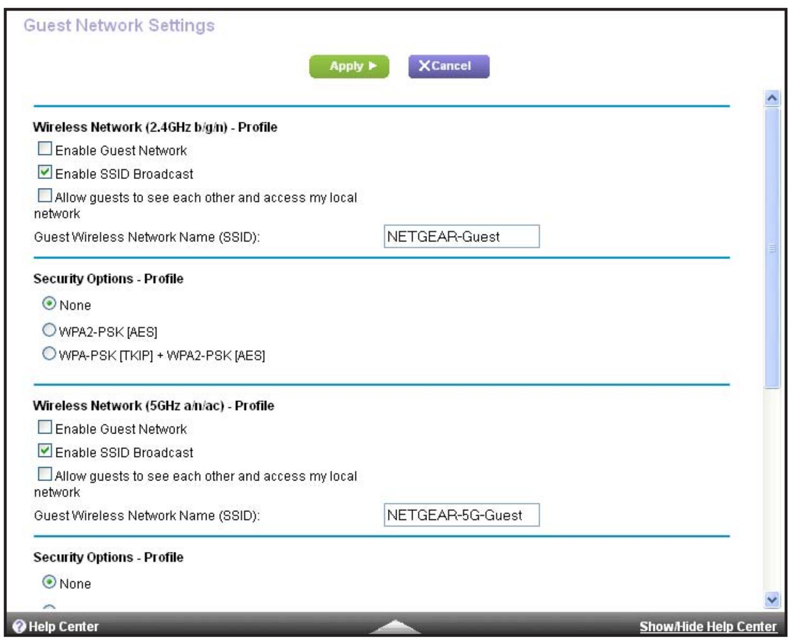
➤ **To set up a guest network:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
4. Select **Guest Network**.



5. Scroll to the section of the screen for the guest WiFi network that you want to set up.

   The default guest wireless network names (SSIDs) are as follows:

   - **NETGEAR-Guest** is for the 2.4 GHz WiFi band.
   - **NETGEAR-5G -Guest** is for the first 5 GHz WiFi band.
   - **NETGEAR-5G-2-Guest** is for the second 5 GHz WiFi band.
6. Select any of the following wireless settings:

- **Enable Guest Network**. When this check box is selected, the guest network is enabled, and guests can connect to your network using the SSID of this profile.
- **Enable SSID Broadcast**. If this check box is selected, the wireless access point broadcasts its name (SSID) to all wireless stations. Stations with no SSID can adopt the correct SSID for connections to this access point.
- **Allow guest to see each other and access my local network**. If this check box is selected, anyone who connects to this SSID has access to your local network, not just Internet access.

7. Give the guest network a name.

   The guest network name is case-sensitive and can be up to 32 characters. You then manually configure the wireless devices in your network to use the guest network name in addition to the main SSID.

8. Select a radio button for a security option.

   The WPA2 options use the newest standard for the strongest security, but some older computers and wireless devices cannot use it. NETGEAR recommends that you select the **WPA-PSK [TKIP] + WPA2-PSK [AES]** radio button. This setting protects your WiFi network and lets computers and wireless devices can connect to the WiFi network by using either WPA2 or WPA security.

9. Click the **Apply** button.

   Your settings are saved.

Control the Wireless Radios

The router has internal wireless radios that broadcast signals in the 2.4 GHz and 5 GHz range. By default, they are on so that you can connect wirelessly to the router. When the wireless radios are off, you can still use an Ethernet cable for a LAN connection to the router.

You can turn the wireless radios on and off with the **WiFi On/Off** button on the router, or you can log in to the router and enable or disable the wireless radios. If you are close to the router, it might be easier to press its **WiFi On/Off** button. If you are away from the router or have already logged in it might be easier to enable or disable them.You can also turn the WiFi radios off and on based on a schedule. (See *Set Up a Wireless Schedule* on page 114).

Use the WiFi On/Off Button

➤ **To turn the wireless radios off and on with the WiFi On/Off button:**

Press the **WiFi On/Off** button on the top of the router for two seconds.

If you turned off the wireless radios, the WiFi On/Off LED and the WPS LED turn off. If you turned on the wireless radios, the WiFi On/Off LED and the WPS LED light.

Enable or Disable the Wireless Radios

If you used the **WiFi On/Off** button to turn off the wireless radios, you can’t log in to the router to turn them back on. You must press the **WiFi On/Off** button again for two seconds to turn the wireless radios back on.

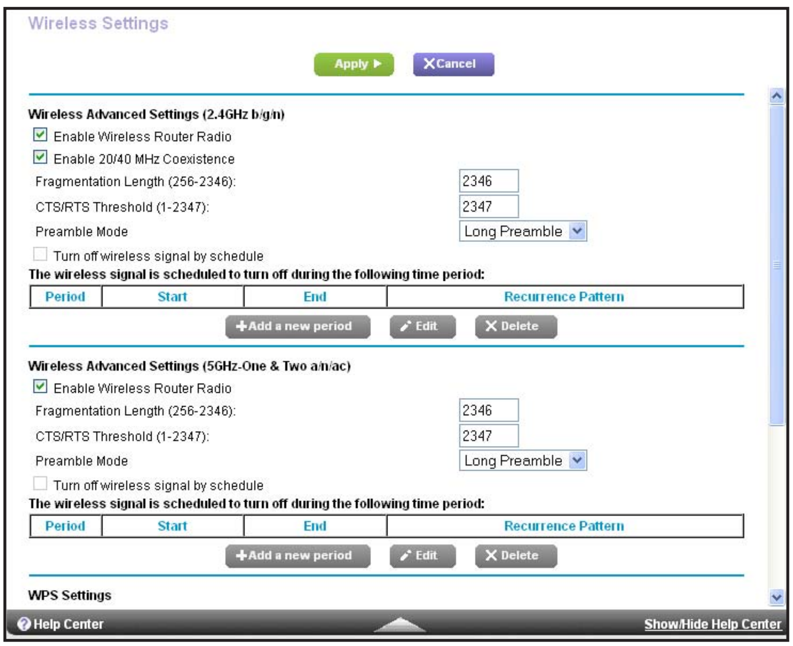
➢ **To enable or disable the wireless radios:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
4. Select **ADVANCED > Advanced Setup > Wireless Settings**.



5. In the 2.4 GHz and 5 GHz sections of the screen, select or clear the **Enable Wireless Radio** check boxes.

   Clearing these check boxes turns off the WiFi feature of the router for each band.
6. Click the **Apply** button.

   If you turned off both wireless radios, the WiFi On/Off LED and the WPS LED turn off. If you turned on the wireless radios, the WiFi On/Off LED and the WPS LED light.

Set Up a Wireless Schedule

You can turn off the wireless signal from your router at times when you do not need a wireless connection. For example, you might turn it off for the weekend if you leave town.

➢ **To set up the wireless schedule:**

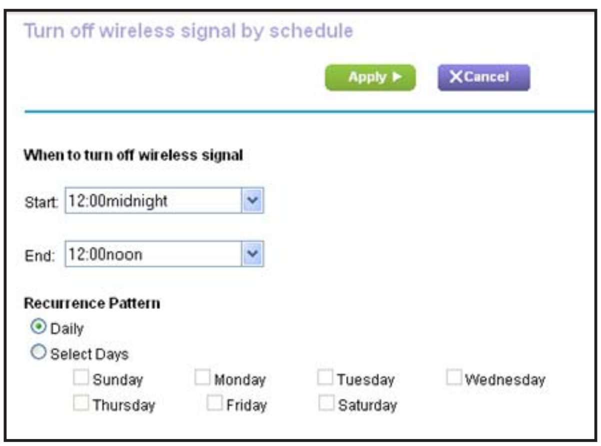
1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
4. Select **ADVANCED > Advanced Setup > Wireless Settings**.

   The Advanced Wireless Settings screen displays.
5. Click the **Add a new period** button.



6. Use the lists, radio buttons, and check boxes to set up a period during which you want to turn off the wireless signal.
7. Click the **Apply** button.

   The Advanced Wireless Settings screen displays.
8. Select the **Turn off wireless signal by schedule** check box to activate the schedule.
9. Click the **Apply** button.

   Your settings are saved.

Specify WPS Settings

Wi-Fi Protected Setup (WPS) lets you join the WiFi network without typing the WiFi password.

➤ **To specify WPS Settings:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
4. Select **ADVANCED > Advanced Setup > Wireless Settings**.

   The Router's PIN field displays the PIN that you use on a registrar (for example, from the Network Explorer on a Vista Windows computer) to configure the router's wireless settings through WPS.
5. (Optional) Select or clear the **Enable Router's PIN** check box.

   The PIN function might temporarily be disabled when the router detects suspicious attempts to break into the router's wireless settings by using the router's PIN through WPS. You can manually enable the PIN function by selecting the **Enable Router's PIN** check box.
6. (Optional) Select or clear the **Keep Existing Wireless Settings** check box.

   By default, the **Keep Existing Wireless Settings** check box is selected. NETGEAR recommends that you leave this check box selected.

   If you clear this check box, the next time a new wireless client uses WPS to connect to the router, the router wireless settings change to an automatically generated random SSID and security key.
7. Click the **Apply** button.

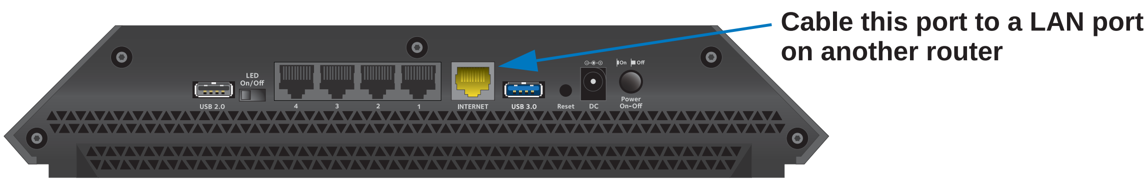
   Your changes are saved.

Use the Router as a Wireless Access Point

You can set up the router to run as an access point (AP) on the same local network as another router.

➢ **To set up the router as an AP:**

1. Use an Ethernet cable to connect the Internet port of this router to a LAN port in the other router.

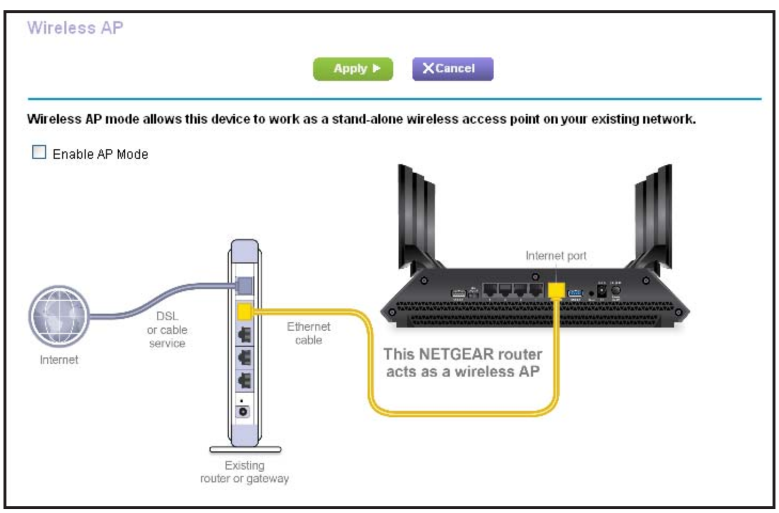


2. Launch an Internet browser from a computer or wireless device that is connected to the network.
3. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
4. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
5. Select **ADVANCED > Advanced Setup > Wireless AP**.



6. Select the **Enable AP Mode** check box.
7. Scroll down and select an IP address setting:
   - **Get dynamically from existing router**. The other router on the network assigns an IP address to this router while this router is in AP mode.
   - **Enable fixed IP settings on this device (not recommended)**. Use this setting if you want to manually assign a specific IP address to this router while it is in AP mode. Using this option effectively requires advanced network experience.

Note: To avoid interference with other routers or gateways in your network, NETGEAR recommends that you use different wireless settings on each router. You can also turn off the wireless radio on the other router or gateway and use the R8000 only for wireless client access.

8. Click the **Apply** button.

   The IP address of the router changes, and you are disconnected.

9. To reconnect, close and restart your browser and type **http://www.routerlogin.net**.

12. Manage Your Network

This chapter describes the router settings for administering and maintaining your router and home network.

This chapter includes the following sections:

Update the Router Firmware

The router firmware (routing software) is stored in flash memory. You might see a message at the top of the genie screens when new firmware is available. You can respond to that message to update the firmware or you can check to see if new firmware is available, and to update your product.

➢ **To check for new firmware and update your router:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
4. Select **ADVANCED > Administration > Router Update**.

   The Router Update screen displays.
5. Click the **Check** button.

   The router finds new firmware information if any is available and displays a message asking if you want to download and install it.
6. Click the **Yes** button.

   The router locates and downloads the firmware and begins the update.

WARNING:

To avoid the risk of corrupting the firmware, do not interrupt the upgrade. For example, do not close the browser, click a link, or load a new page. Do not turn off the router.

When the upload is complete, your router restarts. The upgrade process typically takes about one minute. Read the new firmware release notes to find out if you need to reconfigure the router after upgrading.

Change the admin Password

This feature let you change the default password that is used to log in to the router with the user name admin. This password is not the one that you use for WiFi access.

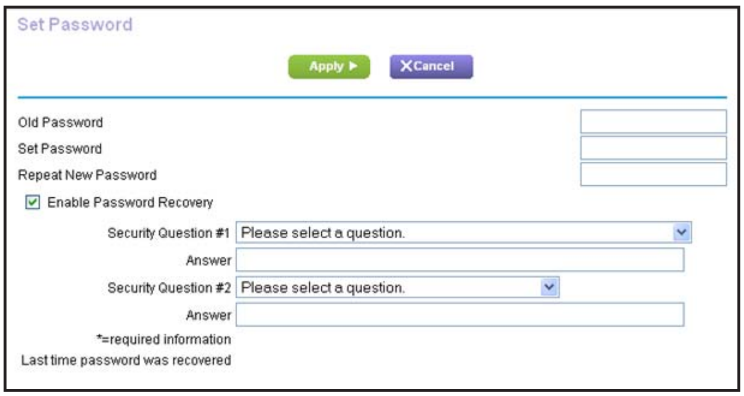
➤ **To set the password for the user name admin:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
4. Select **ADVANCED > Administration > Set Password**.



5. Type the old password, and type the new password twice.
6. To be able to recover the password, select the **Enable Password Recovery** check box.

   NETGEAR recommends that you enable password recovery.
7. Click the **Apply** button.

   Your changes take effect.

Recover the admin Password

NETGEAR recommends that you enable password recovery if you change the password for the router user name admin. Then you can recover the password if it is forgotten. This recovery process is supported in Internet Explorer, Firefox, and Chrome browsers but not in the Safari browser.

➢ **To set up password recovery:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
4. Select **ADVANCED > Administration > Set Password**.

   The Set Password screen displays.
5. Select the **Enable Password Recovery** check box.
6. Select two security questions and provide answers to them.
7. Click the **Apply** button.

   Your changes are saved.

➢ **To recover your password:**

1. In the address field of your browser, type **www.routerlogin.net**.

   A login screen displays.
2. Click the **Cancel** button.

   If password recovery is enabled, you are prompted to enter the serial number of the router.

   The serial number is on the product label.
3. Enter the serial number of the router.
4. Click the **Continue** button.

   A screen displays requesting the answers to your security questions.
5. Enter the saved answers to your security questions.
6. Click the **Continue** button.

   A screen displays your recovered password.

7. Click the **Login again** button.

   A login screen displays.

8. With your recovered password, log in to the router.

View Router Status

➢ **To view router status and usage information:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

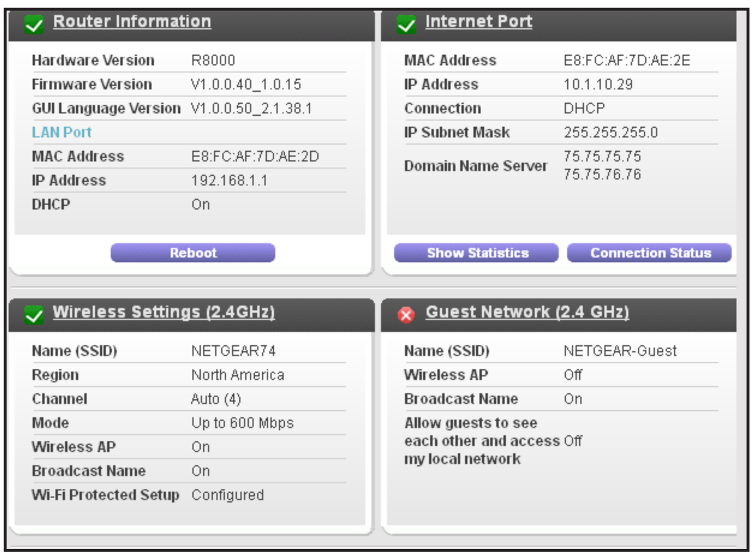
   A login screen displays.

3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.

4. Click the **ADVANCED** tab.



5. For information about the displayed settings, click the **Show/Hide Help Center** link at the bottom of the screen.

Display Internet Port Statistics

➢ **To display Internet port statistics:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.

2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

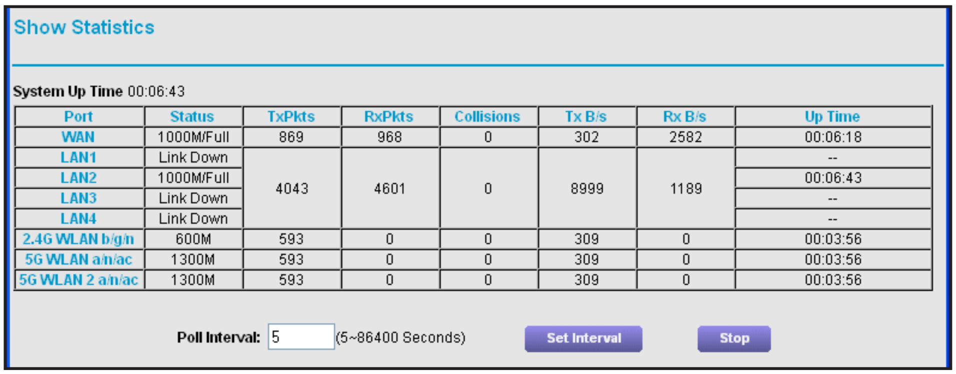
   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

4. The BASIC Home screen displays

5. Click the **ADVANCED** tab.

   The ADVANCED Home screen displays.

6. In the Internet Port pane, click the **Show Statistics** button.



Show Statistics

System Up Time 00:06:43

Port	Status	TxPkts	RxPkts	Collisions	Tx B/s	Rx B/s	Up Time
WAN	1000M/Full	869	968	0	302	2582	00:06:18
LAN1	Link Down	4043	4601	0	8999	1189	--
LAN2	1000M/Full						00:06:43
LAN3	Link Down						--
LAN4	Link Down						--
2.4G WLAN b/g/n	600M	593	0	0	309	0	00:03:56
5G WLAN a/n/ac	1300M	593	0	0	309	0	00:03:56
5G WLAN 2 a/n/ac	1300M	593	0	0	309	0	00:03:56

Poll Interval: 5 (5~86400 Seconds) Set Interval Stop

   The following information displays:

   - **System Up Time**. The time elapsed since the router was last restarted.
   - **Port**. The statistics for the WAN (Internet) and LAN (Ethernet) ports. For each port, the screen displays the following information:
     - **Status**. The link status of the port.
     - **TxPkts**. The number of packets transmitted on this port since reset or manual clear.
     - **RxPkts**. The number of packets received on this port since reset or manual clear.
     - **Collisions**. The number of collisions on this port since reset or manual clear.
     - **Tx B/s**. The current transmission (outbound) bandwidth used on the WAN and LAN ports.
     - **Rx B/s**. The current reception (inbound) bandwidth used on the WAN and LAN ports.
     - **Up Time**. The time elapsed since this port acquired the link.
     - **Poll Interval**. The interval at which the statistics are updated in this screen.

7. To change the polling frequency, enter a time in seconds in the **Poll Interval** field and click the **Set Interval** button.

   To stop the polling entirely, click the **Stop** button.

Check the Internet Connection Status

➤ **To check the Internet connection status:**

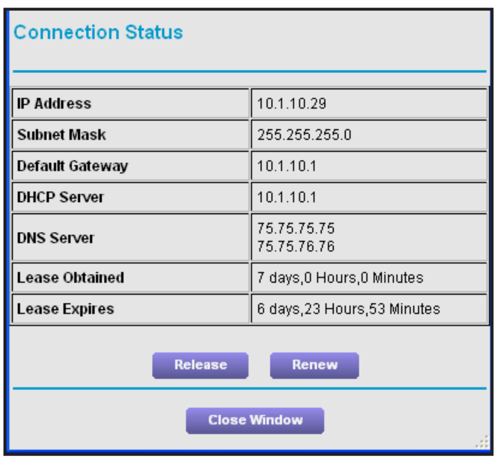
1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
4. Click the **ADVANCED** tab.

   The ADVANCED Home screen displays.
5. In the Internet Port pane, click the **Connection Status** button.



Connection Status

IP Address	10.1.10.29
Subnet Mask	255.255.255.0
Default Gateway	10.1.10.1
DHCP Server	10.1.10.1
DNS Server	75.75.75.75 75.75.76.76
Lease Obtained	7 days,0 Hours,0 Minutes
Lease Expires	6 days,23 Hours,53 Minutes

Release Renew

Close Window

The following information displays:

- **IP Address**. The IP address that is assigned to the router.
- **Subnet Mask**. The subnet mask that is assigned to the router.
- **Default Gateway**. The IP address for the default gateway that the router communicates with.
- **DHCP Server**. The IP address for the Dynamic Host Configuration Protocol server that provides the TCP/IP configuration for all the computers that are connected to the router.
- **DNS Server**. The IP address of the Domain Name Service server that provides translation of network names to IP addresses.
- **Lease Obtained**. The date and time when the lease was obtained.
- **Lease Expires**. The date and time that the lease expires.

6. To return the status of all items to 0, click the **Release** button.
7. To refresh the screen, click the **Renew** button.
8. To exit the screen, click the **Close Window** button.

View and Manage Logs of Router Activity

The log is a detailed record of the websites you have accessed or attempted to access and other router actions. Up to 256 entries are stored in the log. Log entries display only when keyword blocking is enabled and no log entries are made for the trusted user.

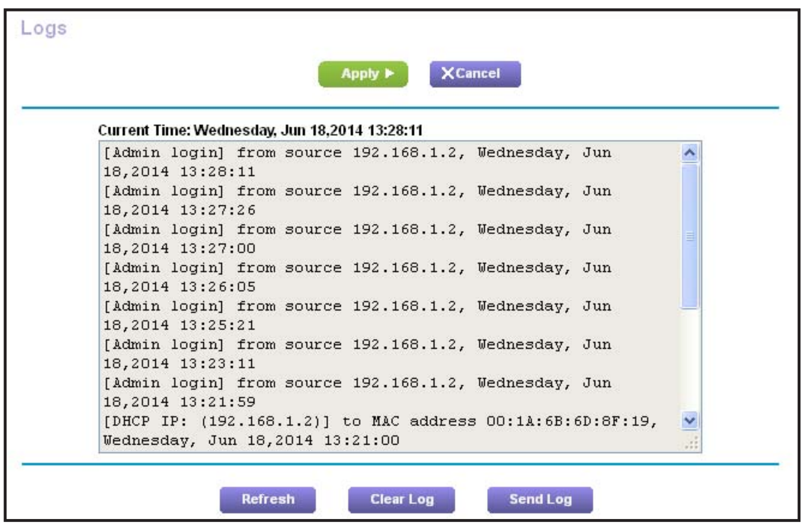
➤ **To view and manage logs:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
4. Select **ADVANCED > Administration > Logs**.



The Logs screen shows the following information:

- **Action**. The action that occurred, such as whether Internet access was blocked or allowed.
- **Source IP**. The IP address of the initiating device for this log entry.
- **Target address**. The name or IP address of the website or news group visited or to which access was attempted.

- **Date and time**. The date and time the log entry was recorded.

5. To customize the logs, scroll down and clear or select the check boxes.

To refresh the log screen, click the **Refresh** button.

To clear the log entries, click the **Clear Log** button.

To email the log immediately, click the **Send Log** button.

Monitor Internet Traffic

Traffic metering allows you to monitor the volume of Internet traffic that passes through the router Internet port. You can set limits for traffic volume.

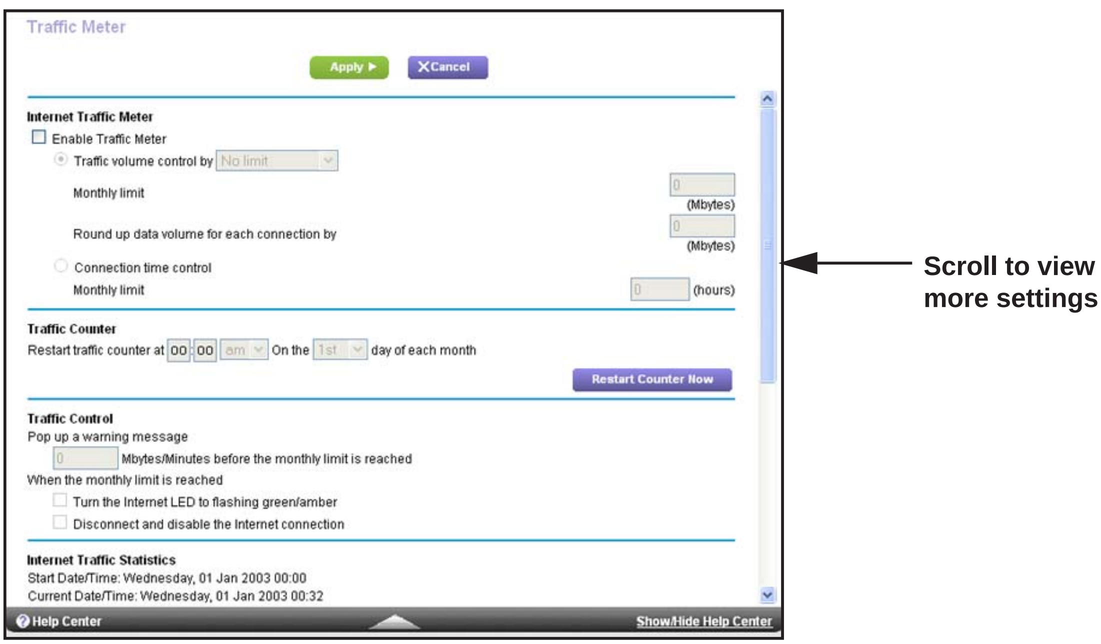
➢ **To monitor Internet traffic:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
4. Select **ADVANCED > Advanced Setup > Traffic Meter**.



5. Select the **Enable Traffic Meter** check box.

6. (Optional) Control the volume of Internet traffic.

   You can use either the traffic volume control feature or the connection time control feature:

   - Select the **Traffic volume control by** radio button and then select one of the following options:
     - **No Limit**. No restriction is applied when the traffic limit is reached.
     - **Download only**. The restriction is applied to incoming traffic only.
     - **Both Directions**. The restriction is applied to both incoming and outgoing traffic.
   - Select the **Connection time control** radio button and enter the allowed hours in the **Monthly limit** field.

7. (Optional) If your ISP charges for extra data volume when you make a new connection, enter the extra data volume in MB in the **Round up data volume for each connection by** field.

8. In the Traffic Counter section, set the traffic counter to begin at a specific time and date.

   If you want the traffic counter to start immediately, click the **Restart Counter Now** button.

9. In the Traffic Control section, specify whether the router should issue a warning message before the monthly limit of Mbytes or hours is reached.

   By default, the value is 0 and no warning message is issued. You can select one of the following to occur when the limit is attained:

   - The Internet LED blinks white or amber.
   - The Internet connection is disconnected and disabled.

10. Click the **Apply** button.

    The Internet Traffic Statistics section helps you to monitor the data traffic.

11. To update the Traffic Statistics section, click the **Refresh** button.

12. To display more information about the data traffic on your router and to change the poll interval, click the **Traffic Status** button.

Custom Static Routes

Typically, you do not need to add static routes unless you have multiple routers or multiple IP subnets on your network.

As an example of when a static route is needed, consider the following case:

- Your main Internet access is through a cable modem to an ISP.
- You have an ISDN router on your home network for connecting to the company where you are employed. This router’s address on your LAN is 192.168.1.100.
- Your company’s network address is 134.177.0.0.

When you set up your router, two implicit static routes were created. A default route was created with your ISP as the gateway, and a second static route was created to your local

network for all 192.168.1.x addresses. With this configuration, if you try to access a device on the 134.177.0.0 network, your router forwards your request to the ISP. The ISP forwards your request to the company where you are employed, and the company firewall is likely to deny the request.

In this case you must define a static route, telling your router to access 134.177.0.0 through the ISDN router at 192.168.1.100. Here is an example:

- The **Destination IP Address** and **IP Subnet Mask** fields specify that this static route applies to all 134.177.x.x addresses.
- The **Gateway IP Address** field specifies that all traffic for these addresses will be forwarded to the ISDN router at 192.168.1.100.
- A metric value of 1 works because the ISDN router is on the LAN.
- **Private** is selected only as a precautionary security measure in case RIP is activated.

Set Up a Static Route

➢ **To set up a static route:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

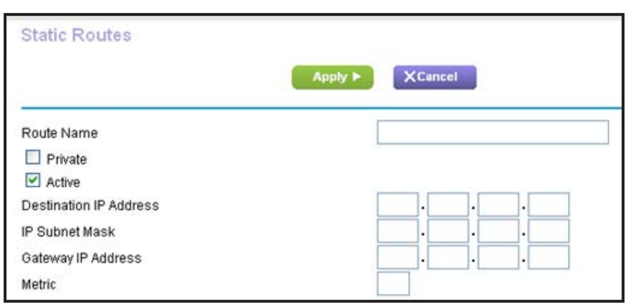
   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
4. Select **ADVANCED > Advanced Setup > Static Routes**.

   The Static Routes screen displays.
5. Click the **Add** button.

   The screen adjusts.



6. In the **Route Name** field, type a name for this static route (for identification purposes only.)
7. Select the **Private** check box if you want to limit access to the LAN only.

If the **Private** check box is selected, the static route is not reported in RIP.

8. Select the **Active** check box to make this route effective.
9. Type the IP address of the final destination.
10. Type the IP subnet mask for this destination.

    If the destination is a single host, type **255.255.255.255**.

11. Type the gateway IP address, which must be on the same LAN segment as the router.
12. Type a number from 1 through 15 as the metric value.

    This value represents the number of routers between your network and the destination. Usually, a setting of 2 or 3 works, but if this is a direct connection, set it to **1**.

13. Click the **Apply** button.

    The static route is added.

Edit a Static Route

➢ **To edit a static route:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

    A login screen displays.

3. Enter the router user name and password.

    The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

    The BASIC Home screen displays.

4. Select **ADVANCED > Advanced Setup > Static Routes**.

    The Custom Static Routes screen displays.

5. In the table, select the radio button for the route.
6. Click the **Edit** button.

    The Static Routes screen adjusts.

7. Edit the route information.
8. Click the **Apply** button.

    Your changes are saved.

Delete a Static Route

➤ **To delete a static route:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
4. Select **ADVANCED > Advanced Setup > Static Routes**.

   The Custom Static Routes screen displays.
5. In the table, select the radio button for the route.
6. Click the **Delete** button.

   The route is removed from the table.

View Devices Currently on the Network

You can view all computers or devices that are currently connected to your network.

➤ **To view devices on the network:**

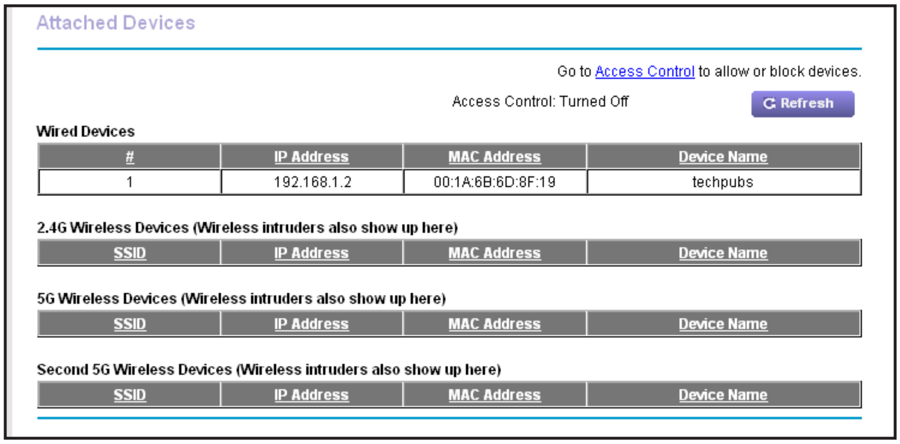
1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.

4. Select **Attached Devices**.



The Wired Devices section lists devices that are connected to the router with Ethernet cables. The other sections list devices that are connected to each WiFi band in the WiFi network. The following information is displayed for wireless devices:

- **SSID**. The wireless network name (SSID).
- **IP Address**. The IP address that the router assigned to this device when it joined the network. This number can change if a device is disconnected and rejoins the network.
- **MAC Address**. The unique MAC address for each device does not change. The MAC address is typically shown on the product label.
- **Device Name**. If the device name is known, it is shown here.

5. To update this screen, click the **Refresh** button.

Manage the Router Configuration File

The configuration settings of the router are stored within the router in a configuration file. You can back up (save) this file to your computer, restore it, or reset it to the factory default settings.

Back Up Settings

➤ **To back up the router’s configuration settings:**

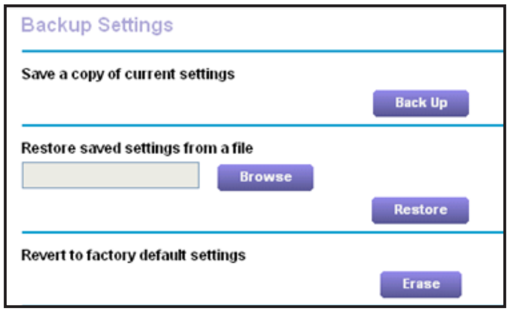
1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

The BASIC Home screen displays.

4. Select **ADVANCED > Administration > Backup Settings**.



5. Click the **Back Up** button.
6. Specify a location on your network.

   A copy of the current settings is saved in the location you specified.

Restore Configuration Settings

➢ **To restore configuration settings that you backed up:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.

3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.

4. Select **ADVANCED > Administration > Backup Settings**.

   The Backup Settings screen displays.

5. Click the **Browse** button to find and select the `.cfg` file.
6. Click the **Restore** button.

   The file is uploaded to the router and the router reboots.

WARNING:

Do not interrupt the reboot process.

Erase the Current Configuration Settings

You can erase the current configuration and restore the factory default settings. You might want to do this if you move the router to a different network. (See *Factory Settings* on page 166.)

➤ **To erase the configuration settings:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
4. Select **ADVANCED > Administration > Backup Settings**.

   The Backup Settings screen displays.
5. Click the **Erase** button.

   The factory default settings are restored. The user name is admin, the password is password, and the LAN IP address is 192.168.1.1. DHCP is enabled.

Remote Management

You can access your router over the Internet to view or change its settings. You must know the router’s WAN IP address to use this feature. For information about remote access using Dynamic DNS, see *Chapter 8, Access USB Devices Through the Internet*.

Note: Be sure to change the password for the user name admin to a secure password. The ideal password contains no dictionary words from any language and contains uppercase and lowercase letters, numbers, and symbols. It can be up to 30 characters. See *Change the admin Password* on page 120.

➤ **To set up remote management:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

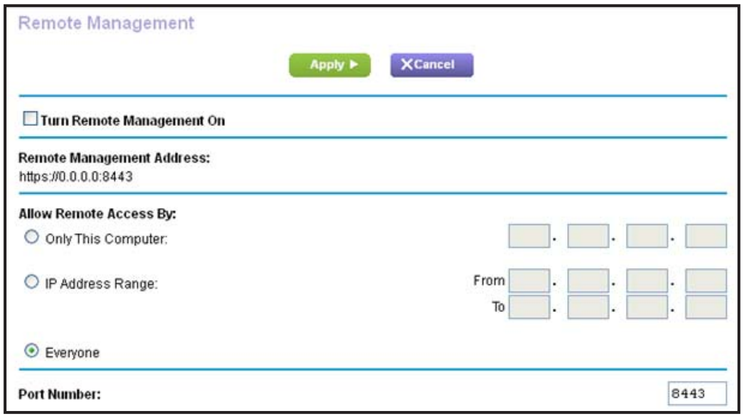
   A login screen displays.

3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.

4. Select **ADVANCED > Advanced Setup > Remote Management**.



5. Select the **Turn Remote Management On** check box.

6. In the Allow Remote Access By section, specify the external IP addresses to be allowed to access the router’s remote management.

   Note: For enhanced security, restrict access to as few external IP addresses as practical

   Select one of the following:

   - **Only This Computer**. Allow access from a single IP address on the Internet. Enter the IP address to be allowed access.
   - **IP Address Range**. Allow access from a range of IP addresses on the Internet. Enter a beginning IP address and an ending IP address to define the allowed range.
   - **Everyone**. Allow access from any IP address on the Internet.

7. Specify the port number for accessing the web management interface.

   Normal web browser access uses the standard HTTP service port 80. For greater security, enter a custom port number for the remote web management interface. Choose a number from 1024 to 65535, but do not use the number of any common service port. The default is 8080, which is a common alternate for HTTP.

8. Click the **Apply** button.

   Your changes take effect.

➤ **To use remote access:**

1. Launch an Internet browser on a computer that is not on your home network.

2. Type your router's WAN IP address into your browser's address or location field followed by a colon (:) and the custom port number.

   For example, if your external address is 134.177.0.123 and you use port number 8080, enter **http://134.177.0.123:8080** in your browser.

13. Use VPN to Access Your Network 13

You can use OpenVPN software to remotely access your router using virtual private networking (VPN). This chapter explains how to set up and use VPN access.

This chapter includes the following sections:

Set Up a VPN Connection

A virtual private network (VPN) lets you use the Internet to securely access your network when you aren't home.

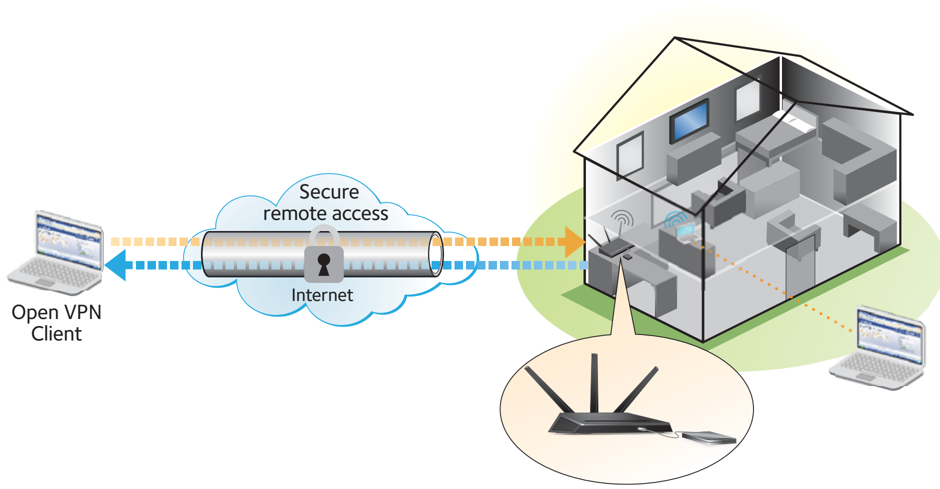


Figure 14. VPN provides a secure tunnel between your home network and a remote computer

This type of VPN access is called a client-to-gateway tunnel. The computer is the client, and the router is the gateway. To use the VPN feature, you must log in to the router and enable VPN, and you must install and run VPN client software on the computer.

Note: The router currently does not support iOS or Android VPN client software.

VPN uses DDNS or a static IP address to connect with your router.

To use a DDNS service, register for an account with a host name (sometimes called a domain name). You use the host name to access your network. The router supports these accounts: NETGEAR www.no-ip.com, www.no-ip.com, and www.DynDNS.org.

If your Internet service provider (ISP) assigned a static WAN IP address (such as 50.196.x.x or 10.x.x.x) that never changes to your Internet account, the VPN can use that IP address to connect to your home network.

Specify VPN Service in the Router

You must specify the VPN service settings in the router before you can use a VPN connection.

➤ **To specify the VPN service:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
4. Select **ADVANCED > Advanced Setup > VPN Service**.

   The VPN Service screen displays.
5. Select the **Enable VPN Service** check box.

   By default, the VPN uses the UDP service type and uses port 12974. If you want to customize the service type and port, NETGEAR recommends that you change these settings before you install the OpenVPN software.
6. To change the service type, scroll down and select the **TCP** radio button.
7. To change the port, scroll down to the **Service Port** field, and type the port number that you want to use.
8. Click the **Apply** button.

   Your changes are saved. VPN is enabled in the router, but you must install and set up OpenVPN software on your computer before you can use a VPN connection.

Install OpenVPN Software on Your Computer

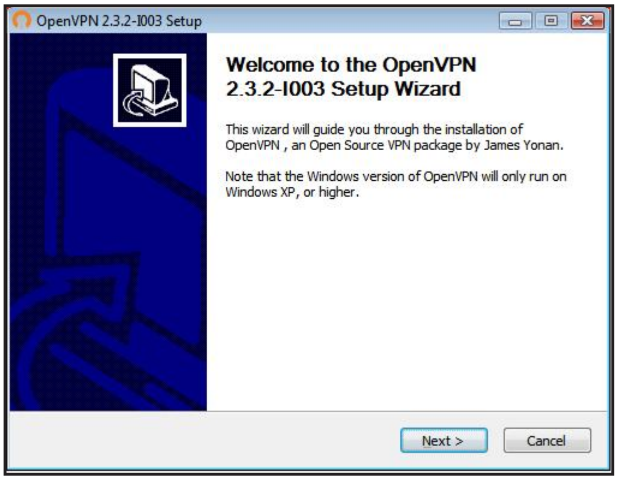
You must install this software on each computer that you plan to use for VPN connections to your router.

➤ **To install VPN client software:**

1. Visit *http://openvpn.net/index.php/download/community-downloads.html*.
2. In the Windows Installer section of the screen, double-click the **`openVPN-install-xxx.exe`** link.
3. Download the file.

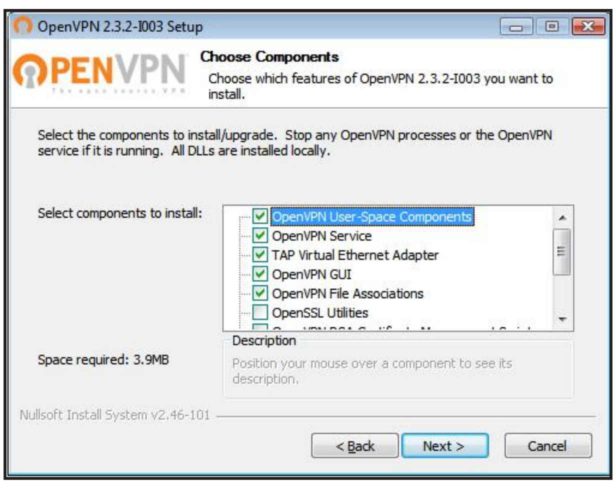
4. To install the Open VPN software on your computer, click the **`openVPN-install-xxx.exe`** file.

   The OpenVPN Setup Wizard displays:



5. Click the **Next** button.
6. Read the License Agreement and click the **I Agree** button.

   The Choose Components screen displays:



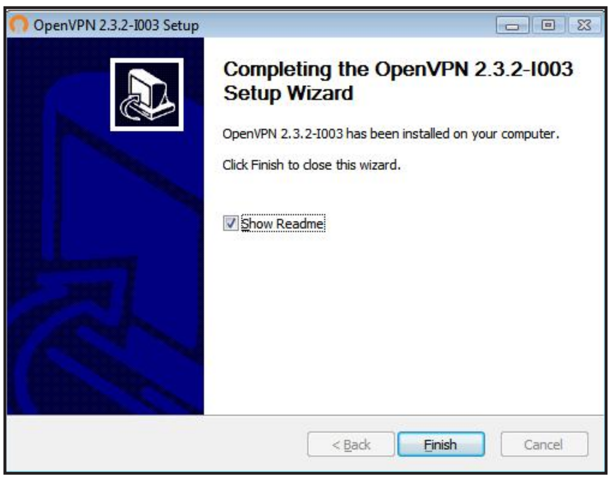
7. Leave the check boxes selected as shown, and click the **Next** button.
8. To specify the destination folder, click the **Browse** button and select a destination folder.

The following screen displays:



9. Click the **Install** button.

   The screen displays the progress of the installation and then displays the final installation screen.



10. Click the **Finish** button.
11. Unzip the configuration files that you downloaded and copy them to the folder where the VPN client is installed on your device.

    For a client device with Windows 64-bit system, the VPN client is installed at `C:\Program files\OpenVPN\config\` by default.

12. For a client device with Windows, modify the VPN interface name to **NETGEAR-VPN**:
    a. In Windows, select **Control Panel > Network and Internet > Network Connections**.
    b. In the local area connection list, find the local area connection with the device name **TAP-Windows Adapter**.
    c. Select the local area connection and change its name (not its device name) to **NETGEAR-VPN**.

    If you do not change the VPN interface name, the VPN tunnel connection will fail.

Use a VPN Tunnel

After you set up the router to use VPN and install the OpenVPN application on your computer, you can open a VPN tunnel from your computer to your router over the Internet.

For the VPN tunnel to work, the local LAN IP address of the remote R8000 must have a different LAN IP scheme from that of the local LAN where your VPN client computer is connected. If both networks use the same LAN IP scheme, when the VPN tunnel is established, you cannot access your home router or your home network with the OpenVPN software.

The default LAN IP address scheme for the R8000 is 192.x.x.x. The most common IP schemes are 192.x.x.x, 172.x.x.x, and 10.x.x.x. If you experience a conflict, change the IP scheme either for your home network or for the network with the client VPN computer. For information about changing these settings, see *Change the LAN TCP/IP Settings* on page 100.

➢ **To open a VPN tunnel:**

1. Launch the OpenVPN application with administrator privileges.

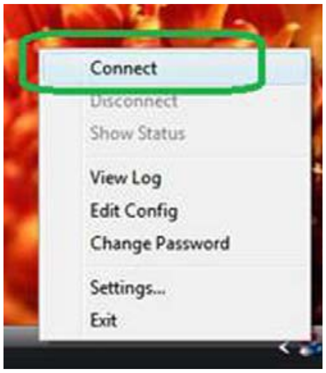


The **OpenVPN** icon displays in the Windows taskbar.

Tip: You can create a shortcut to the VPN program, then use the shortcut to access the settings and select the **run as administrator** check box.Then every time you use this shortcut, OpenVPN automatically runs with administrator privileges.

2. Right-click the **OpenVPN** icon.

A menu displays:



3. Select **Connect**.

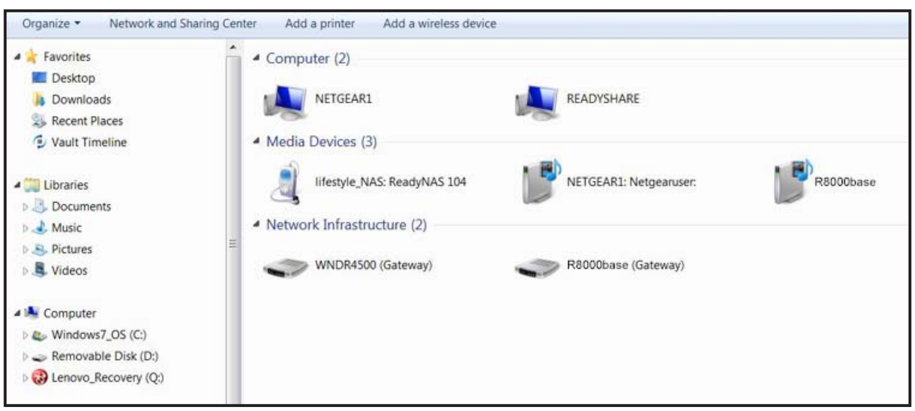
The VPN connection is established. You can do the following:

- Launch an Internet browser and log in to your router.
- Use Windows file manager to access the router's USB device and download files.

Use VPN to Access the Router's USB Device and Media

➤ **To access a USB device and download files:**

1. In Windows file manager, select the **Network** folder.



The network resources display. The ReadySHARE icon is in the Computer section and the remote R8000 icon is in the Media Devices section (if DLNA is enabled in the router).

2. If the icons do not display, click the **Refresh** button to update the screen.

If the local LAN and the remote LAN are using the same IP scheme, the remote R8000 icon does not display in the Media Devices and Network Infrastructure sections.

3. To access the USB device, click the **ReadySHARE** icon.
4. To access media on the router's network, click the **R8000** icon.

Use VPN to Access Your Internet Service at Home

When you're away from home and you access the Internet, you usually use a local Internet service provider. For example, at a coffee shop you might be given a code that lets you use the coffee shop's Internet service account to surf the web.

Nighthawk lets you use a VPN connection to access your own Internet service when you're away from home. You might want to do this if you travel to a geographic location that doesn't support all the Internet services that you use at home. For example, your Netflix account might work at home but not in a different country.

Set Up VPN Client Internet Access in the Router

By default, the router is set up to allow VPN connections only to your home network but you can change the setting to allow Internet access. Accessing the Internet remotely through a VPN might be slower than accessing the Internet directly.

➢ **To allow VPN clients to use your home Internet service:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
4. Select **ADVANCED > Advanced Setup > VPN Service**.

   The VPN screen displays.
5. Select the **Enable VPN Service** radio button.
6. Scroll down to the Clients will use this VPN connection to access section, and select the **All sites on the Internet & Home Network** radio button.

   When you access the Internet with the VPN connection, instead of using a local Internet service, you use the Internet service from your home network.
7. Click the **Apply** button.

   Your settings are saved.
8. Click the **For Windows** or **For Non Windows** button and download the configuration files for your VPN clients.
9. Unzip the configuration files and copy them to the folder where the VPN client is installed on your device.

For a client device with Windows 64-bit system, the VPN client is installed at `C:\Program files\OpenVPN\config\` by default.

Block VPN Client Internet Access in the Router

By default, the router is set up to allow VPN connections only to your home network, not to the Internet service for your home network. If you changed this setting to allow Internet access, you can change it back.

➤ **To allow VPN clients to access only your home network:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
4. Select **ADVANCED > Advanced Setup > VPN Service**.

   The VNP screen displays.
5. Select the **Enable VPN Service** radio button.
6. Scroll down to the Clients will use this VPN connection to access section, and select the **Home Network only** radio button.

   This is the default setting. The VPN connection is only to your home network, not to the Internet service for your home network.
7. Click the **Apply** button.

   Your settings are saved.
8. Click **For Windows** or **For Non Windows** button and download the configuration files for your VPN clients.
9. Unzip the configuration files and copy them to the folder where the VPN client is installed on your device.

   For a client device with Windows 64-bit system, the VPN client is installed at `C:\Program files\OpenVPN\config\` by default.

Use a VPN Tunnel to Access Your Internet Service at Home

➤ **To access your Internet service:**

1. Set up the router to allow VPN access to your Internet service.

   See *Set Up VPN Client Internet Access in the Router* on page 143

2. On your computer, launch the OpenVPN application.

   The **OpenVPN** icon displays in the Windows taskbar.

3. Right-click the icon, and select **Connect**.
4. When the VPN connection is established, launch your Internet browser.

Specify Internet Port Settings

14

You can use port forwarding and port triggering to set up rules for Internet traffic. You need networking knowledge to set up these features.

This chapter includes the following sections:

- *Set Up Port Forwarding to a Local Server*
- *Set Up Port Triggering*

Set Up Port Forwarding to a Local Server

If you have a server in your home network, you can allow certain types of incoming traffic to reach the server. For example, you might want to make a local web server, FTP server, or game server visible and available to the Internet.

The router can forward incoming traffic with specific protocols to computers on your local network. You can specify the servers for applications and you can also specify a default DMZ server to which the router forwards all other incoming protocols.

➢ **To forward specific incoming protocols:**

1. Decide which type of service, application, or game you want to provide.
2. Find the local IP address of the computer on your network that will provide the service.

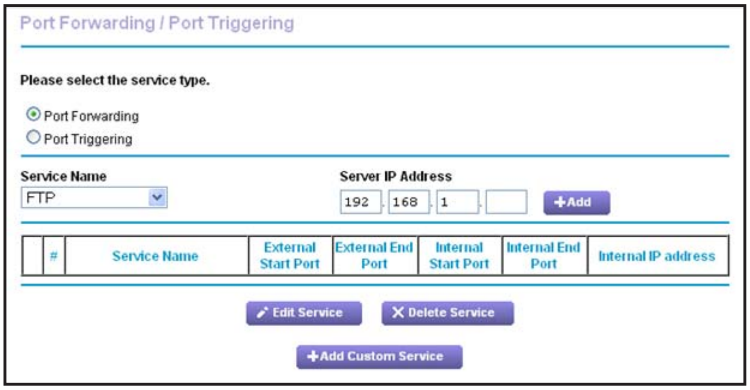
   You can usually find this information by contacting the publisher of the application or user groups or news groups.

   The server computer must always have the same IP address. Assign the server computer a reserved IP address. See *Reserve LAN IP Addresses* on page 104.
3. Launch an Internet browser from a computer or wireless device that is connected to the network.
4. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
5. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
6. Select **ADVANCED > Advanced Setup > Port Forwarding/Port Triggering**.



7. Leave the **Port Forwarding** radio button selected as the service type.
8. In the **Service Name** list, select the service name.

   If the service that you want to add is not in the list, create a custom service. See *Add a Custom Port Forwarding Service* on page 148.

9. In the **Server IP Address** field, enter the IP address of the computer that will provide the service.
10. Click the **Add** button.

    The service displays in the list.

Add a Custom Port Forwarding Service

➢ **To add a custom service:**

1. Find out which port number or range of numbers the application uses.

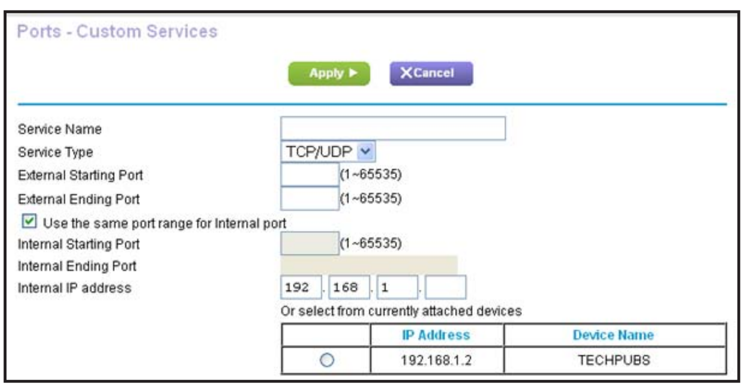
   You can usually find this information by contacting the publisher of the application or user groups or news groups.
2. Launch an Internet browser from a computer or wireless device that is connected to the network.
3. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
4. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
5. Select **ADVANCED > Advanced Setup > Port Forwarding/Port Triggering**.

   The Port Forwarding/Port Triggering screen displays.
6. Leave the **Port Forwarding** radio button selected as the service type.
7. Click the **Add Custom Service** button.



8. In the **Service Name** field, enter a descriptive name.
9. In the **Service Type** field, select the protocol.

   If you are unsure, select **TCP/UDP**.
10. In the **External Starting Port** field, enter the beginning port number.

If the application uses a single port, enter the same port number in the **External Ending Port** field.

If the application uses a range of ports, enter the ending port number of the range in the **External Ending Port** field.

11. Specify the internal ports by one of these methods:
    - Leave the **Use the same port range for Internal port** check box selected.
    - Type the port numbers in the **Internal Starting Port** and **Internal Ending Port** fields.
12. In the **Internal IP address** field, type the IP addressor select the radio button for an attached device listed in the table.
13. Click the **Apply** button.

    The service is now in the list on the Port Forwarding/Port Triggering screen.

Edit a Port Forwarding Service

➢ **To edit a port forwarding entry:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
4. Select **ADVANCED > Advanced Setup > Port Forwarding/Port Triggering**.

   The Port Forwarding/Port Triggering screen displays.
5. Leave the **Port Forwarding** radio button selected as the service type.
6. In the table, select the radio button next to the service name.
7. Click the **Edit Service** button.

   The Ports - Custom Services screen displays.
8. Change the settings as needed:
9. Click the **Apply** button.

   Your changes are saved.

Delete a Port Forwarding Entry

➤ **To delete a port forwarding entry:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
4. Select **ADVANCED > Advanced Setup > Port Forwarding/Port Triggering**.

   The Port Forwarding/Port Triggering screen displays.
5. Select the **Port Forwarding** radio button as the service type.
6. In the table, select the radio button next to the service name.
7. Click the **Delete Service** button.

   The service is deleted.

Application Example: Make a Local Web Server Public

If you host a web server on your local network, you can use port forwarding to allow web requests from anyone on the Internet to reach your web server.

➤ **To make a local web server public:**

1. Assign your web server either a fixed IP address or a dynamic IP address using DHCP address reservation.

   In this example, your router always gives your web server an IP address of 192.168.1.33.
2. In the Port Forwarding/Port Triggering screen, configure the router to forward the HTTP service to the local address of your web server at **192.168.1.33**.

   HTTP (port 80) is the standard protocol for web servers.
3. (Optional) Register a host name with a Dynamic DNS service and specify that name in the Dynamic DNS screen of the router.

   Dynamic DNS makes it much easier to access a server from the Internet because you can type the name in the Internet browser. Otherwise, you must know the IP address that the ISP assigned, which typically changes.

How the Router Implements the Port Forwarding Rule

The following sequence shows the effects of a port forwarding rule:

1. When you type the URL www.example.com in your browser, the browser sends a web page request message with the following destination information:
   - **Destination address**. The IP address of www.example.com, which is the address of your router.
   - **Destination port number**. 80, which is the standard port number for a web server process.
2. Your router receives the message and finds your port forwarding rule for incoming port 80 traffic.
3. The router changes the destination in the message to IP address 192.168.1.123 and sends the message to that computer.
4. Your web server at IP address 192.168.1.123 receives the request and sends a reply message to your router.
5. Your router performs Network Address Translation (NAT) on the source IP address, and sends the reply through the Internet to the computer or wireless device that sent the web page request.

Set Up Port Triggering

Port triggering is a dynamic extension of port forwarding that is useful in these cases:

- An application must use port forwarding to more than one local computer (but not simultaneously).
- An application must open incoming ports that are different from the outgoing port.

With port triggering, the router monitors traffic to the Internet from an outbound “trigger” port that you specify. For outbound traffic from that port, the router saves the IP address of the computer that sent the traffic. The router temporarily opens the incoming port or ports that you specify in your rule, and forwards that incoming traffic to that destination.

Port forwarding creates a static mapping of a port number or range of ports to a single local computer. Port triggering can dynamically open ports to any computer when needed and close the ports when they are no longer needed.

Note: If you use applications such as multiplayer gaming, peer-to-peer connections, real-time communications such as instant messaging, or remote assistance (a feature in Windows XP), enable Universal Plug and Play (UPnP). See *Improve Network Connections with Universal Plug and Play* on page 39.

Add a Port Triggering Service

➤ **To add a port triggering service:**

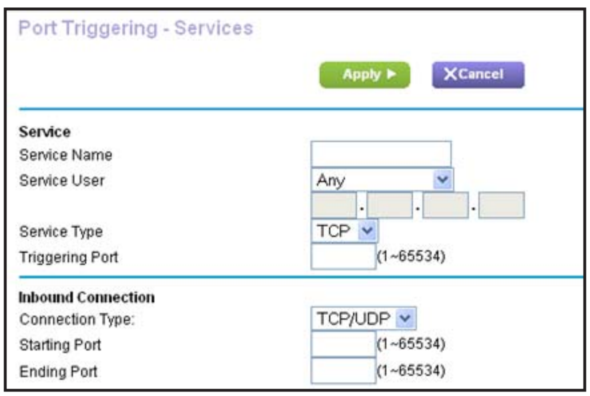
1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
4. Select **ADVANCED > Advanced Setup > Port Forwarding/Port Triggering.**

   The Port Forwarding/Port Triggering screen displays.
5. Select the **Port Triggering** radio button.
6. Click the **Add Service** button.



7. In the **Service Name** field, type a descriptive service name.
8. From the **Service User** list, select a user option:
   - **Any** (the default) allows any computer on the Internet to use this service.
   - **Single address** restricts the service to a particular computer.
9. From the **Service Type** list, select **TCP** or **UDP** or **TCP/UDP** (both).

   If you are not sure, select **TCP/UDP**.
10. In the **Triggering Port** field, enter the number of the outbound traffic port that will open the inbound ports.
11. In the **Connection Type**, **Starting Port**, and **Ending Port** fields.
12. Click the **Apply** button.

    The service is now in the Portmap table. You must enable port triggering before the router uses port triggering. See *Enable Port Triggering* on page 153.

Enable Port Triggering

➤ **To enable port triggering:**

1. Launch an Internet browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
4. Select **ADVANCED > Advanced Setup > Port Forwarding/Port Triggering**.

   The Port Forwarding/Port Triggering screen displays.
5. Select the **Port Triggering** radio button.



6. Clear the **Disable Port Triggering** check box.

   If this check box is selected, the router does not use port triggering even if you have specified port triggering settings.
7. In the **Port Triggering Timeout** field, enter a value up to 9999 minutes.

   This value controls how long the inbound ports stay open when the router detects no activity. This value is required because the router cannot detect when the application terminates.

Application Example: Port Triggering for Internet Relay Chat

Some application servers, such as FTP and IRC servers, send replies to multiple port numbers. Using port triggering, you can tell the router to open more incoming ports when a particular outgoing port starts a session.

An example is Internet Relay Chat (IRC). Your computer connects to an IRC server at destination port 6667. The IRC server not only responds to your originating source port but

also sends an “identify” message to your computer on port 113. Using port triggering, you can tell the router, “When you initiate a session with destination port 6667, you must also allow incoming traffic on port 113 to reach the originating computer.” The following sequence shows the effects of this port triggering rule:

1. You open an IRC client program to start a chat session on your computer.
2. Your IRC client composes a request message to an IRC server using a destination port number of 6667, the standard port number for an IRC server process. Your computer then sends this request message to your router.
3. Your router creates an entry in its internal session table describing this communication session between your computer and the IRC server. Your router stores the original information, performs Network Address Translation (NAT) on the source address and port, and sends this request message through the Internet to the IRC server.
4. Noting your port triggering rule and observing the destination port number of 6667, your router creates another session entry to send any incoming port 113 traffic to your computer.
5. The IRC server sends a return message to your router using the NAT-assigned source port (for example, port 33333) as the destination port and sends an “identify” message to your router with destination port 113.
6. When your router receives the incoming message to destination port 33333, it checks its session table to see if a session is active for port number 33333. Finding an active session, the router restores the original address information replaced by NAT and sends this reply message to your computer.
7. When your router receives the incoming message to destination port 113, it checks its session table and finds an active session for port 113 associated with your computer. The router replaces the message’s destination IP address with your computer’s IP address and forwards the message to your computer.
8. When you finish your chat session, your router eventually senses a period of inactivity in the communications. The router then removes the session information from its session table and incoming traffic is no longer accepted on port numbers 33333 or 113.

15. Troubleshooting

This chapter provides information to help you diagnose and solve problems you might have with your router. If you do not find the solution here, check the NETGEAR support site at *http://support.netgear.com* for product and contact information.

This chapter contains the following sections:

Quick Tips

This section describes tips for troubleshooting some common problems.

Sequence to Restart Your Network

When you need to restart your network, follow this sequence:

1. Turn off *and* unplug the modem.
2. Turn off the router.
3. Plug in the modem and turn it on. Wait two minutes.
4. Turn on the router and wait two minutes.

Check Ethernet Cable Connections

If your device does not power on, make sure that the Ethernet cables are securely plugged in. The Internet LED on the router is lit if the Ethernet cable connecting the router and the modem is plugged in securely and the modem and router are turned on. If one or more powered-on computers are connected to the router by an Ethernet cable, the corresponding numbered router LAN port LED lights.

Wireless Settings

Make sure that the wireless settings in the computer and router match exactly. The wireless network name (SSID) and wireless security settings of the router and wireless computer must match exactly.

If you set up an access list in the Advanced Wireless Settings screen, you must add each wireless computer's MAC address to the router's access list.

Network Settings

Make sure that the network settings of the computer are correct. Wired and wirelessly connected computers must use network (IP) addresses on the same network as the router. The simplest way to do this is to configure each computer to obtain an IP address automatically using DHCP.

Some cable modem service providers require you to use the MAC address of the computer initially registered on the account. You can view the MAC address in the Attached Devices screen.

Troubleshoot with the LEDs

By default, the router is set with standard LED settings. If you disabled blinking for the LEDs or turned off all LEDs except the Power LED, you must return the LEDs to their standard settings for troubleshooting. For information about controlling the LED settings, see *Turn the LEDs On or Off* on page 12.

Standard LED Behavior When the Router is Powered On

After you turn on power to the router, the following sequence of events occurs:

1. When power is first applied, verify that the Power LED is lit.
2. After approximately 30 seconds, verify the following:
   - The Power LED is solid white.
   - The Internet LED is lit.
   - The WiFi LED is lit unless you turned off the wireless radio.

You can use the LEDs on the front panel of the router for troubleshooting.

Power LED Is Off or Blinking

- Make sure that the power adapter is securely connected to your router and securely connected to a working power outlet.
- Check that you are using the power adapter that NETGEAR supplied for this product.
- If the Power LED blinks slowly and continuously, the router firmware is corrupted. This can happen if a firmware upgrade is interrupted, or if the router detects a problem with the firmware. If the error persists, you have a hardware problem. For recovery instructions, or help with a hardware problem, contact technical support at *www.netgear.com/support.*

Power LED Stays Amber

When the router is turned on, the Power LED turns amber for about 20 seconds and then turns white. If the LED does not turn white, the router has a problem.

If the Power LED is still amber one minute after you turn on power to the router, do the following:

1. Turn off the power and then turn it back on to see if the router recovers.
2. Press and hold the **Reset** button to return the router to its factory settings.

   See *Factory Settings* on page 166.

If the error persists, you might have a hardware problem. Contact technical support at *www.netgear.com/support.*

LEDs Never Turn Off

When the router is turned on, the LEDs light for about 10 seconds and then turn off. If all the LEDs stay on, this indicates a fault within the router.

If all LEDs are still lit one minute after power-up, do the following:

- Cycle the power to see if the router recovers.
- Press and hold the **Reset** button to return the router to its factory settings. For more information, see *Factory Settings* on page 166.

If the error persists, you might have a hardware problem. Contact technical support at *www.netgear.com/support*.

Internet or Ethernet Port LEDs Are Off

If either the Ethernet port LEDs or the Internet LED does not light when the Ethernet connection is made, check the following:

- Make sure that the Ethernet cable connections are secure at the router and at the modem or computer.
- Make sure that power is turned on to the connected modem or computer.
- Be sure that you are using the correct cable.

  When connecting the router's Internet port to a cable or DSL modem, use the cable that was supplied with the cable or DSL modem. This cable can be a standard straight-through Ethernet cable or an Ethernet crossover cable.

WiFi LED Is Off

If the WiFi LED stays off, check to see if the **WiFi On/Off** button on the router has been pressed. This button turns the wireless radios in the router on and off. The WiFi LED is lit when the wireless radio is turned on.

Cannot Log In to the Router

If you are unable to log in to the router from a computer on your local network, check the following:

- If you are using an Ethernet-connected computer, check the Ethernet connection between the computer and the router.
- Make sure that the IP address of your computer is on the same subnet as the router. If you are using the recommended addressing scheme, your computer's address is in the range of 192.168.1.2 to 192.168.1.254.
- If your computer's IP address is shown as 169.254.x.x, recent versions of Windows and Mac OS generate and assign an IP address if the computer cannot reach a DHCP server. These autogenerated addresses are in the range of 169.254.x.x. If your IP address is in

this range, check the connection from the computer to the router, and reboot your computer.

- If your router's IP address was changed and you do not know the current IP address, clear the router's configuration to factory defaults. This sets the router's IP address to 192.168.1.1. For more information, see *Factory Settings* on page 166.
- Make sure that your browser has Java, JavaScript, or ActiveX enabled. If you are using Internet Explorer, click the **Refresh** button to be sure that the Java applet is loaded.
- Try quitting the browser and launching it again.
- Make sure that you are using the correct login information. The user name is **admin**, and the default password is **password**. Make sure that Caps Lock is off when you enter this information.
- If you are attempting to set up your NETGEAR router as a replacement for an ADSL gateway in your network, the router cannot perform many gateway services. For example, the router cannot convert ADSL or cable data into Ethernet networking information. NETGEAR does not support such a configuration.

Cannot Access the Internet

If you can access your router but not the Internet, check to see if the router can obtain an IP address from your Internet service provider (ISP). Unless your ISP provides a fixed IP address, your router requests an IP address from the ISP. You can determine whether the request was successful using the Router Status screen.

➤ **To check the WAN IP address:**

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Select an external site such as *www.netgear.com*.
3. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

   A login screen displays.
4. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.
5. Click the **ADVANCED** tab.

   The ADVANCED Home screen displays.
6. Check that an IP address is shown for the Internet port. If 0.0.0.0 is shown, your router has not obtained an IP address from your ISP.

If your router cannot obtain an IP address from the ISP, you might need to force your cable or DSL modem to recognize your new router by restarting your network. For more information, see *Sequence to Restart Your Network* on page 156.

If your router is still unable to obtain an IP address from the ISP, the problem might be one of the following:

- Your Internet service provider (ISP) might require a login program.
  Ask your ISP whether they require PPP over Ethernet (PPPoE) or some other type of login.
- If your ISP requires a login, the login name and password might be set incorrectly.
- Your ISP might check for your computer's host name.
  Assign the computer host name of your ISP account as the account name in the Internet Setup screen.
- Your ISP allows only one Ethernet MAC address to connect to Internet and might check for your computer's MAC address. In this case, do one of the following:
  - Inform your ISP that you have bought a new network device, and ask them to use the router's MAC address.
  - Configure your router to clone your computer's MAC address.

If your router has an IP address, but your computer is does not load any web pages from the Internet, it might be due to one or more of the following reasons:

- Your computer might not recognize any DNS server addresses.

  A DNS server is a host on the Internet that translates Internet names (such as www addresses) to numeric IP addresses. Typically, your ISP provides the addresses of one or two DNS servers for your use. If you entered a DNS address during the router's configuration, reboot your computer, and verify the DNS address. You can configure your computer manually with DNS addresses, as explained in your operating system documentation.
- Your computer might not have the router configured as its TCP/IP gateway.

  If your computer obtains its information from the router by DHCP, reboot the computer, and verify the gateway address.
- You might be running login software that is no longer needed.

  If your ISP provided a program to log you in to the Internet (such as WinPoET), you no longer need to run that software after installing your router. You might need to go to Internet Explorer and select **Tools > Internet Options**, click the **Connections** tab, and select **Never dial a connection**.

Troubleshoot PPPoE

If you are using PPPoE, try troubleshooting your Internet connection.

- **To troubleshoot a PPPoE connection:**

1. Launch a web browser from a computer or wireless device that is connected to the network.
2. Type **http://www.routerlogin.net** or **http://www.routerlogin.com**.

A login screen displays.

3. Enter the router user name and password.

   The user name is **admin**. The default password is **password**. The user name and password are case-sensitive.

   The BASIC Home screen displays.

4. Click the **ADVANCED** tab.

   The ADVANCED Home screen displays.

5. In the Internet Port pane, click the **Connection Status** button.

   The Connection Status screen displays.

6. Check the Connection Status screen to see if your PPPoE connection is up and working.

   If you don’t have a connection, click the **Connect** button.

   The router continues to attempt to connect indefinitely.

7. If you cannot connect after several minutes, the router might be set up with an incorrect service name, user name, or password, or your ISP might have a provisioning problem.

Unless you connect manually, the router does not authenticate using PPPoE until data is transmitted to the network.

Troubleshoot Internet Browsing

If your router can obtain an IP address but your computer is unable to load any web pages from the Internet, check the following:

- Your computer might not recognize any DNS server addresses. A DNS server is a host on the Internet that translates Internet names (such as www addresses) to numeric IP addresses.

  Typically, your ISP provides the addresses of one or two DNS servers for your use. If you entered a DNS address during the router’s configuration, restart your computer.

  Alternatively, you can configure your computer manually with a DNS address, as explained in the documentation for your computer.

- Your computer might not have the router configured as its default gateway.

  Reboot the computer and verify that the router address (www.routerlogin.net) is listed by your computer as the default gateway address.

- You might be running login software that is no longer needed. If your ISP provided a program to log you in to the Internet (such as WinPoET), you no longer need to run that software after installing your router. You might need to go to Internet Explorer and select **Tools > Internet Options**, click the **Connections** tab, and select the **Never dial a connection**.

Changes Not Saved

If the router does not save the changes you make in the router interface, do the following:

- When entering configuration settings, always click the **Apply** button before moving to another screen or tab, or your changes are lost.
- Click the **Refresh** or **Reload** button in the web browser. The changes might have occurred, but the old settings might be in the web browser’s cache.

Wireless Connectivity

If you are having trouble connecting wirelessly to the router, try to isolate the problem:

- Does the wireless device or computer that you are using find your wireless network?

  If not, check the WiFi LED on the front of the router. If it is off, you can press the **WiFi On/Off** button on the router to turn the router wireless radios back on.

  If you disabled the router’s SSID broadcast, then your wireless network is hidden and does not display in your wireless client’s scanning list. (By default, SSID broadcast is enabled.)
- Does your wireless device support the security that you are using for your wireless network (WPA or WPA2)?
- If you want to view the wireless settings for the router, use an Ethernet cable to connect a computer to a LAN port on the router. Then log in to the router, and select **BASIC > Wireless**.

  Note: Be sure to click the **Apply** button if you change settings.

If your wireless device finds your network but the signal strength is weak, check these conditions:

- Is your router too far from your computer or too close? Place your computer near the router but at least 6 feet (1.8 meters) away and see whether the signal strength improves.
- Are objects between the router and your computer blocking the wireless signal?

Troubleshoot Your Network Using the Ping Utility

Most network devices and routers contain a ping utility that sends an echo request packet to the designated device. The device then responds with an echo reply. You can easily troubleshoot a network using the ping utility in your computer or workstation.

Test the LAN Path to Your Router

You can ping the router from your computer to verify that the LAN path to your router is set up correctly.

➢ **To ping the router from a Windows computer:**

1. From the Windows toolbar, click **Start** and select **Run**.
2. In the field provided, type **ping** followed by the IP address of the router, as in this example:

   ping www.routerlogin.net

3. Click the **OK** button.

   You see a message like this one:

   ```
   Pinging <IP address > with 32 bytes of data
   ```

   If the path is working, you see this message:

   ```
   Reply from < IP address >: bytes=32 time=NN ms TTL=xxx
   ```

   If the path is not working, you see this message:

   ```
   Request timed out
   ```

If the path is not functioning correctly, you might have one of the following problems:

- Wrong physical connections

  For a wired connection, make sure that the numbered LAN port LED is lit for the port to which you are connected.

  Check that the appropriate LEDs are on for your network devices. If your router and computer are connected to a separate Ethernet switch, make sure that the link LEDs are lit for the switch ports that are connected to your computer and router.

- Wrong network configuration

  Verify that the Ethernet card driver software and TCP/IP software are both installed and configured on your computer.

  Verify that the IP address for your router and your computer are correct and that the addresses are on the same subnet.

Test the Path from Your Computer to a Remote Device

After verifying that the LAN path works correctly, test the path from your computer to a remote device.

1. From the Windows toolbar, click the **Start** button and select **Run**.
2. In the Windows Run window, type

   ping -n 10 *<IP address>*

   where <IP address> is the IP address of a remote device such as your ISP DNS server.

If the path is functioning correctly, messages display that are similar to those shown in the previous section, *Test the LAN Path to Your Router* on page 163.

If you do not receive replies, check the following:

- Check that your computer has the IP address of your router listed as the default gateway. If DHCP assigns the IP configuration of your computers, this information is not visible in your computer Network Control Panel. Verify that the IP address of the router is listed as the default gateway.
- Check to see that the network address of your computer (the portion of the IP address specified by the subnet mask) is different from the network address of the remote device.
- Check that your cable or DSL modem is connected and functioning.
- If your ISP assigned a host name to your computer, enter that host name as the account name in the Internet Setup screen.
- Your ISP might be rejecting the Ethernet MAC addresses of all but one of your computers.

  Many broadband ISPs restrict access by allowing traffic only from the MAC address of your broadband modem. Some ISPs additionally restrict access to the MAC address of a single computer connected to that modem. If your ISP does this, configure your router to “clone” or “spoof” the MAC address from the authorized computer.

A. Supplemental Information

A

This appendix includes technical information about your router.

This appendix covers the following topics:

- *Factory Settings*
- *Technical Specifications*

Factory Settings

You can return the router to its factory settings. Use the end of a paper clip or a similar object to press and hold the **Reset** button on the back of the router for at least seven seconds. The router resets and returns to the factory configuration settings shown in the following table.

Table 3. Factory default settings

Feature		Default behavior
Router login	User login URL	www.routerlogin.com or www.routerlogin.net
	User name (case-sensitive)	admin
	Login password (case-sensitive)	password
Internet connection	WAN MAC address	Use default hardware address
	WAN MTU size	1500
	Port speed	AutoSensing
Local network (LAN)	LAN IP	192.168.1.1
	Subnet mask	255.255.255.0
	DHCP server	Enabled
	DHCP range	192.168.1.2 to 192.168.1.254
	Time zone	Pacific time
	DHCP starting IP address	192.168.1.2
	DHCP ending IP address	192.168.1.254
	DMZ	Disabled
	Time zone	GMT for WW except NA and GR, GMT+1 for GR, GMT-8 for NA
	Time zone adjusted for daylight saving time	Disabled
	SNMP	Disabled
Firewall	Inbound (communications coming in from the Internet)	Disabled (except traffic on port 80, the HTTP port)
	Outbound (communications going out to the Internet)	Enabled (all)
	Source MAC filtering	Disabled

Table 3. Factory default settings (continued)

Feature		Default behavior
Wireless	Wireless communication	Enabled
	SSID name	See router label
	Security	WPA2-PSK (AES)
	Broadcast SSID	Enabled
	Transmission speed	Auto*
	Country/region	United States in the US; otherwise, varies by region
	RF channel	Auto for 2.4GHz, CH 44 for 5GHz- 1, and CH 153 for 5GHz-2
	Operating mode	Up to 600 Mbps at 2.4 GHz, 1300 Mbps at 5 GHz

**. Maximum wireless signal rate derived from IEEE Standard 802.11 specifications. Actual throughput can vary. Network conditions and environmental factors, including volume of network traffic, building materials and construction, and network overhead, lower actual data throughput rate*

Technical Specifications

Table 4. R8000 Router specifications

Feature	Description
Data and routing protocols	TCP/IP, RIP-1, RIP-2, DHCP, PPPoE, PPTP, Bigpond, Dynamic DNS, UPnP, and SMB
Power adapter	• North America: 120V, 60 Hz, input • UK, Australia: 240V, 50 Hz, input • Europe: 230V, 50 Hz, input • All regions (output): 12V/5A DC output
Dimensions	11.63 x 8.92 x 2.14 in (295.5 x 226.8 x 54.5 mm)
Weight	2.43 lbs (1.1 kg)
Operating temperature	0° to 40° C (32º to 104º F)
Operating humidity	90% maximum relative humidity, noncondensing
Electromagnetic emissions	FCC Part 15 Class B VCCI Class B EN 55 022 (CISPR 22), Class B C-Tick N10947
LAN	10BASE-T or 100BASE-TX or 1000BASE-T, RJ-45
WAN	10BASE-T or 100BASE-TX or 1000BASE-T, RJ-45
Wireless	Maximum wireless signal rate complies with the IEEE 802.11 standard.[*]
Radio data rates	Auto Rate Sensing
Data encoding standards	• IEEE® 802.11 b/g/n 2.4 GHz-256QAM support • IEEE® 802.11 a/n/ac 5.0 GHz
Maximum computers per wireless network	Limited by the amount of wireless network traffic generated by each node (typically 50–70 nodes).
Operating frequency range	AC3200[†] WiFi • Band 1: 600 Mbps @2.4GHz-256QAM • Band 2: 1300 Mbps @5GHz • Band 3: 1300 Mbps @5GHz
802.11 security	WPA2-PSK and WPA/WPA2

**. Maximum wireless signal rate derived from IEEE Standard 802.11 specifications. Actual throughput can vary. Network conditions and environmental factors, including volume of network traffic, building materials and construction, and network overhead, lower actual data throughput rate.*

†. NETGEAR makes no express orimplied representations or warranties about this product's compatibility with any future standards. 802.11ac 1300 Mbps is approximately 3x faster than 802.11n 450 Mbps. 2.4 GHzPerformance Mode requires 256 QAM support on WiFi client. Up to 1300 Mbps wireless speeds achieved when connecting to other 802.11ac 1300 Mbps devices.